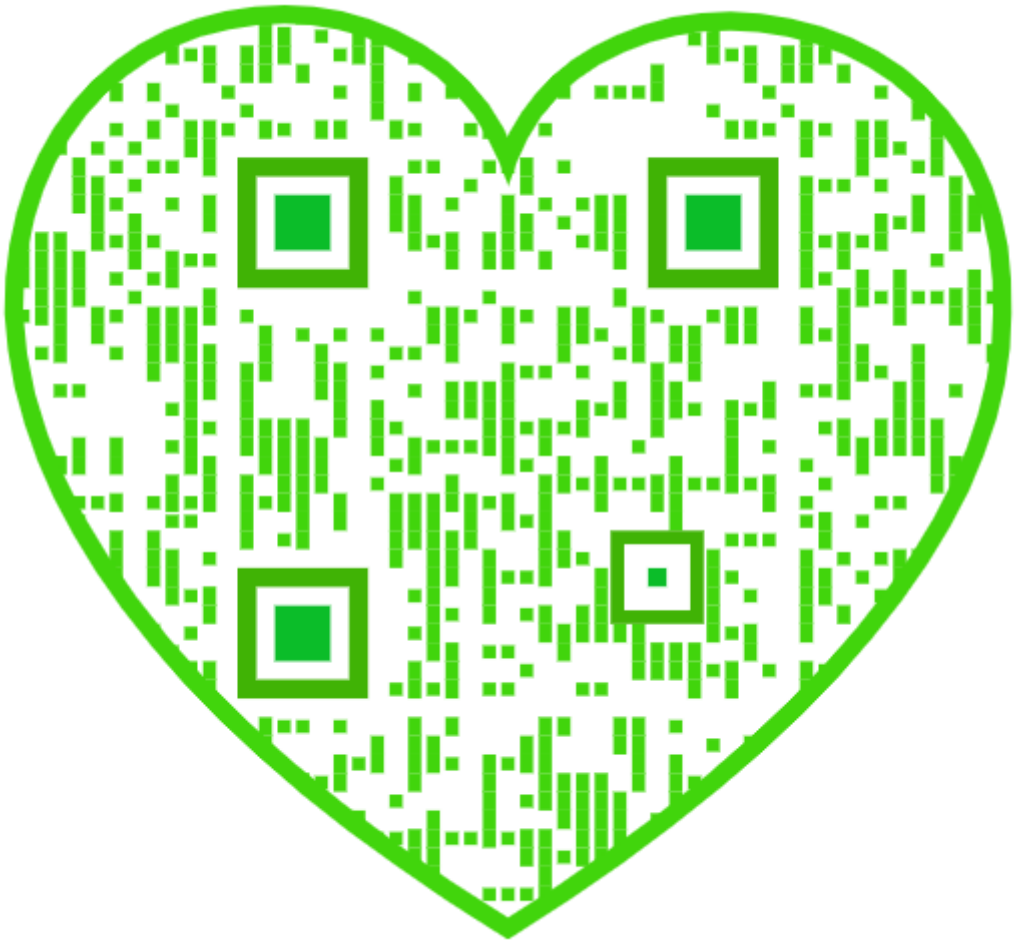

TRANSACTIONS

OF THE

AMERICAN ASSOCIATION

OF

OBSTETRICIANS AND GYNECOLOGISTS

VOL. XXII

FOR THE YEAR 1909

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NOTE.

The Association does not hold itself responsible for the views enunciated in the papers and discussions published in this volume.

WILLIAM WARREN POTTER, *Secretary*,
238 DELAWARE AVENUE, BUFFALO.

[Minutes and discussions stenographically reported by WILLIAM WHITFORD, Chicago, Ill.]

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CONSTITUTION AND BY-LAWS

OF THE

AMERICAN ASSOCIATION

OF

OBSTETRICIANS AND GYNECOLOGISTS

TOGETHER WITH

MINUTES OF THE TWENTY-SECOND ANNUAL MEETING

AMERICAN ASSOCIATION

OF

OBSTETRICIANS AND GYNECOLOGISTS.

CONSTITUTION.

I. The name of this Association shall be THE AMERICAN ASSOCIATION OF OBSTETRICIANS AND GYNECOLOGISTS.

II. Its object shall be the cultivation and promotion of knowledge in whatever relates to Abdominal Surgery, Obstetrics, and Gynecology.

MEMBERS.

III. The members of this Association shall consist of Ordinary Fellows, Honorary Fellows, and Corresponding Fellows.

The Ordinary Fellows shall not exceed one hundred and fifty in number.

The Honorary Fellows shall not exceed ten American and twenty-five foreign.

Candidates shall be proposed to the Executive Council at least one month before the first day of meeting, by two Fellows, and shall be balloted for at the annual meeting, a list of names having been sent to every Fellow with the notification of the meeting.

A two-thirds vote in the affirmative of all the members present shall be necessary to elect—fifteen Fellows at least being in attendance.

All candidates for active fellowship shall submit to the Executive Council, at least one month before the annual meeting, an original paper relating to Abdominal Surgery, Obstetrics, or Gynecology.

HONORARY FELLOWS.

IV. The power of nominating Honorary Fellows shall be vested in the Executive Council.

Their election shall take place in the same manner as that of Ordinary Fellows.

They shall enjoy all the privileges of Ordinary Fellows, excepting to vote or hold office, but shall not be required to pay any fee.

CORRESPONDING FELLOWS.

V. The Corresponding Fellows shall be recommended by the Executive Council and elected by the Association.

They shall enjoy all the priveliges of Ordinary Fellows, excepting to vote or hold office, and shall be entitled to a copy of the annual TRANSACTIONS.

They shall pay an annual fee of five dollars.

OFFICERS.

VI. The officers of this Association shall be a President, two Vice-Presidents, a Secretary, a Treasurer, and six Executive Councillors.

The nomination of all officers shall be made in open session at the business meeting, and the election shall be by ballot.

The first five officers shall enter upon their duties immediately before the adjournment of the meeting at which they shall be elected, and shall hold office for one year.

["At the election next succeeding the adoption of these laws, the full number of Executive Councillors shall be elected; two for a term of three years, two for a term of two years, and two for a term of one year.

"At every subsequent election two Councillors shall be elected for a term of three years, and shall continue in office until their successors shall have been elected and shall have qualified."][1]

Any vacancy occurring during the recess may be filled temporarily by the Executive Council.

ANNUAL MEETINGS.

VII. The time and place of holding the annual meeting shall be determined by the Association or may be committed to the Executive Council each time before adjournment.

It shall continue for three days, unless otherwise ordered by vote of the Association.

[1]Amendment adopted September 21, 1898.

AMENDMENTS.

VIII. This Constitution may be amended by a two-thirds vote of all the Fellows present at the annual meeting: *provided*, that notice of the proposed amendment shall have been given in writing at the annual meeting next preceding: and *provided, further*, that such notice shall have been printed in the notification of the meeting at which the vote is to be taken.

AMERICAN ASSOCIATION

OF

OBSTETRICIANS AND GYNECOLOGISTS.

BY-LAWS.

THE PRESIDING OFFICER.

I. The President, or in his absence, one of the Vice-Presidents, shall preside at all meetings, and perform such other duties as ordinarily pertain to the Chair.

The presiding officer shall be *ex-officio* chairman of the Executive Council, but shall vote therein only in case of a tie.

SECRETARY.

II. The Secretary shall attend and keep a record of all meetings of the Association and of the Executive Council, of which latter he shall be *ex-officio* clerk, and shall be entitled to vote therein.

He shall collect all moneys due from the members, and shall pay the same over to the Treasurer, taking his receipt therefor.

He shall supervise and conduct all correspondence of the Association; he shall superintend the publication of the TRANSACTIONS under the direction of the Executive Council, and shall perform all the ordinary duties of his office.

He shall be the custodian of the seal, books, and records of the Association.

TREASURER.

III. The Treasurer shall receive all moneys from the Secretary, pay all bills, and render an account thereof at the annual meetings, when an Auditing Committee shall be appointed to examine his accounts and vouchers.

EXECUTIVE COUNCIL.

IV. The Executive Council shall meet as often as the interests of the Association may require. The President, or any three members may call a meeting, and a majority shall constitute a quorum.

It shall have the management of the affairs of the Association, subject to the action of the house at its annual meetings.

It shall have control of the publications of the Association, with full power to accept or reject papers or discussions.

It shall have control of the arrangements for the annual meetings, and shall determine the order of the reading of papers.

It shall constitute a court of inquiry for the investigation of all charges against members for offences involving law or honor; and it shall have the sole power of moving the expulsion of any Fellow.

ORDER OF BUSINESS.

V. The Order of Business at the annual meetings of the Association shall be as follows:

1. General meeting at 10 o'clock A. M.
   a. Reports of Committees on Scientific Questions.
   b. Reading of Papers and Discussion of the same.
2. One business Meeting shall be held at half-past nine o'clock A. M. on the first day of the session, and another on the evening of the second day (unless otherwise ordered by vote), at which only the Fellows of the Association shall be present. At these meetings the Secretary's record shall be read; the Treasurer's Accounts submitted; the reports of Committees on other than scientific subjects offered; and all Miscellaneous Business transacted.

PAPERS.

VI. The titles of all papers to be read at any annual meeting shall be furnished to the Secretary *not later* than one month before the first day of the meeting.

No paper shall be read before the Association that has already been published, or that has been read before any other body.

Not more than thirty minutes shall be occupied in reading any paper before the Association.

Abstracts of all papers read should be furnished to the Secretary at the meeting.

All papers read before the Association shall become its sole property if accepted for publication; and the Executive Council may decline to publish any paper not handed to the Secretary *complete* before the final adjournment of the annual meeting.

QUORUM.

VII. The Fellows present shall constitute a quorum for all business, excepting the admission of new Fellows or acting upon amendments to the Constitution, when not less than fifteen Fellows must be present.

DECORUM.

VIII. No remarks reflecting upon the personal or professional character of any Fellow shall be in order at any meeting, except when introduced by the Executive Council.

FINANCE.

IX. Each Fellow, on admission, shall pay an initiation fee of twenty-five dollars, which shall include his dues for the first year.

Every Fellow shall pay, *in advance* (*i.e.*, at the beginning of each fiscal year) the sum of twenty dollars annually thereafter.

[A fiscal year includes the period of time between the first day of one annual meeting and the first day of the next.]

Any Fellow neglecting to pay his annual dues for two years may forfeit his membership, upon vote of the Executive Council.

The Secretary shall receive, annually, a draft from the President, drawn on the Treasurer, for a sum, to be fixed by the Executive Council, for the services he shall have rendered the Association during the year.

A contingent fund of one hundred dollars shall be placed annually at the disposal of the Secretary for current expenses, to be disbursed by him, and for which he shall present proper vouchers.

ATTENDANCE.

X. Any Fellow who shall neither attend nor present a paper for three consecutive years, unless he offer a satisfactory excuse, may be dropped from fellowship, upon vote of the Executive Council.

RULES.

XI. *Robert's Rules of Order* shall be accepted as a parliamentary guide in the deliberations of the Association.

AMENDMENTS.

XII. These By-Laws may be amended by a two-thirds vote of the Fellows present at any meeting; *provided*, previous notice in writing shall have been given at the annual meeting next preceding the one at which the vote is to be taken.

OFFICERS FOR 1909–1910.

PRESIDENT.

AARON BENJAMIN MILLER, SYRACUSE.

VICE-PRESIDENTS.

CHARLES NORTH SMITH, TOLEDO.
RALEIGH RUSSELL HUGGINS, PITTSBURG.

SECRETARY.

WILLIAM WARREN POTTER, BUFFALO.

TREASURER.

XAVIER OSWALD WERDER, PITTSBURG.

EXECUTIVE COUNCIL.

ROBERT TUTTLE MORRIS, NEW YORK.
WILLIAM A. B. SELLMAN, BALTIMORE.
E. GUSTAV ZINKE, CINCINNATI.
HERMAN EMIL HAYD, BUFFALO.
WILLIAM HENRY HUMISTON, CLEVELAND.
HUGO OTTO PANTZER, INDIANAPOLIS.

HONORARY FELLOWS.

*Deceased.

1899.—BALLANTYNE, JOHN WILLIAM, M.D., F.R.C.P.E., F.R.S. Edin. Lecturer on Midwifery and Gynecology, School of Medicine of the Royal Colleges, Surgeons' Hall, Edinburgh; Physician to the Royal Maternity Hospital, Edinburgh; formerly President of the Edinburgh Obstetrical Society; Examiner in Midwifery in the University of Edinburgh; Honorary Fellow of the Glasgow Obstetrical and Gynecological Society. 19 Rothesay Terrace, Edinburgh, Scotland.

1889.—BANTOCK, GEORGE GRANVILLE, M.D., F.R.C.S. Ed. Surgeon to the Samaritan Free Hospital. 36 Gloucester Place, Portman Square, W. London; Dunrobin, Payne's Lane, Pinner, Middlesex, England.

1889.—BARBOUR, SIR A. H. FREELAND, M.A., B.S.C., M.D., F.R.C.P. Ed., F.R.S. Ed. Lecturer on Midwifery and Diseases of Women in the Edinburgh Medical School; Assistant Physician to the Royal Maternity Hospital; Assistant Physician for Diseases of Women to the Royal Infirmary; Physician to the Women's Dispensary; Fellow of the Edinburgh and London Obstetrical Societies, and of the British Gynecological Society; Corresponding Fellow of the Royal Academy of Medicine, Turin. 4 Charlotte Square, Edinburgh, Scotland.

1892.—*BOISLINIERE, L. CH., A.B., M.D., LL.D. Saint Louis, Mo. 1896.

1890.—CHAMPIONNIERE, JUST. LUCAS, M.D. 3 Avenue Montaigne, Paris, France.

1889.—*CHARPENTIER, LOUIS ARTHUR ALPHONSE, M.D. Paris, France. 1899.

1888.—CORDES, AUGUST ELISEE, M.D. Member of the Royal College of Physicians, London; Fellow of the Obstetrical Society of London and of the British Gynecological Society; Corresponding National Member of the Obstetrical and Gynecological Society of Paris; Honorary Fellow of the Detroit Gynecologi-

cal Society; late "Chirurgien-adjoint" of the Obstetrical and Gynecological Clinic at the Maternity at Geneva; Consulting Accoucheur of the Miséricorde Hospital, etc.; Perpetual member of the Société Obstétricale de France, Paris, France. 3 Chemin du Square, Geneva, Switzerland.

1890.—*CORSON HIRAM, M.D. Plymouth Meeting, Pa. 1896.

1909.—CROFFORD, THOMAS JEFFERSON, M.D. (Transferred from Ordinary List.) Office, Goodwyn Institute, Memphis, Tenn.

1889.—CROOM, SIR J. HALLIDAY, M.D., F.R.C.P.E., F.R.C.S.E., F.R.S.E. Professor of Midwifery in the University of Edinburgh; Consulting Physician to the Royal Infirmary; Physician to the Royal Maternity Hospital; late President of the Royal College of Surgeons, Edinburgh. 25 Charlotte Square, Edinburgh, Scotland.

1889.—*DUNLAP, ALEXANDER, A. M., M.D. Springfield, O. 1894.

1888.—*EDIS, ARTHUR WELLESLEY, M.D. Lond. F.R.C.S., M.R.S.C.S. London, England. 1893.

1889.—*EKLUND, ABRAHAM FREDRIK, M.D. Stockholm, Sweden. 1898.

1891.—FERNANDEZ, JUAN SANTOS, M.D. Prado, No. 105, Havana, Cuba.

1891.—*FISHER, GEORGE JACKSON, A.M., M.D. Sing Sing, N. Y. 1893.

1889.—FREUND, WILLIAM ALEXANDER, M.D. Emeritus Professor and Director of the Clinic for Diseases of Women in the University of Strassburg. Kleiststrasse 9, Berlin W., Germany.

1896.—*GASTON, JAMES MCFADDEN, A.M., M.D. Atlanta, Ga. 1903.

1892.—*GREEN, TRAILL, M.D., LL.D. Easton, Pa. 1897.

1894.—JACOBS, CHARLES, M.D. Professor of the Faculty of Medicine of Brussels; Secretary-General of the Permanent Committee of the Periodic International Congress of Gynecology and Obstetrics; Honorary President of the Belgian Society of Gynecology and Obstetrics; Honorary Fellow of the Gynecological Societies of New York and Chicago; Member of the Southern Surgical and Gynecological Association; Correspond-

ing Member of the Gynecological Society of Paris; Surgeon to the Brussels Polyclinic. 53 Boulevard de Waterloo, Brussels, Belgium.

1889.—*KEITH, THOMAS, M.D. London, England. 1896.

1889.—LEOPOLD, G., M.D. Professor in the Royal Clinic for Diseases of Women. 90 Pfotenhauerstrasse, Dresden, Germany.

1905.—MCGRAW, THEODORE A., M.D. 73 Cass Street, Detroit, Mich.

1894.—*MACLEAN, DONALD, M.D. Detroit, Mich. 1903.

1890. MARTIN, AUGUST, M.D. Emeritus Professor of Gynecology in the University of Greifswald. Keithstrasse 14, Berlin W. 62, Germany.

1895.—*MASTIN, CLAUDIUS HENRY, M.D., LL.D. Mobile, Ala. 1898.

1897.—MATHEWS, JOSEPH MCDOWELL, M.D. Professor of Diseases of the Rectum and Clinical Surgery, Hospital College of Medicine; President of the Kentucky State Board of Health; First Vice-President American Medical Association, 1898; President, 1899. 411 The Masonic, Louisville, Kentucky.

1891.—*MOSES, GRATZ ASHE, M.D. Saint Louis, Mo. 1901.

1905.—*MYERS, WILLIAM HERSCHEL, M.D. (*Founder.* Transferred from Ordinary Fellows.) Fort Wayne, Ind. 1907.

1889.—NICOLAYSEN, JULIUS, M.D. Professor of Surgery in the University of Norway. Christiania, Norway.

1891.—PIETRANERA, E., M.D. Professor of Obstetrics in the Medical Department of the National University; Director of the Maternity Branch of the Clinical Hospital. 2711 Calle Rio Adaria, Buenos Ayres, Argentine Republic, S. A.

1889.—*SAENGER, MAX, M.D. Prague. 1903.

1890.—*SAVAGE, THOMAS, M.D., F.R.C.S. Eng. Birmingham, England. 1907.

1889.—SCHULTZE, BERNHARD SIGMUND, M.D. Professor of Gynecology; Director of the Lying-in Institute and of the Gynecological Clinic. 2 Sellierstrasse, Jena, Germany.

1890.—SEGOND, PAUL, M.D. Professor of Clinical Surgery of the Faculty of Medicine, Paris; Surgeon to the Salpétrière. 4 Quai Debilly, Paris, France.

1899.—SINCLAIR, SIR WILLIAM JAPP, M.A., M.D. (Aberd.), M.R.C.P. Professor of Obstetrics and Gynecology, Owens College, Victoria University; Physician to the Manchester Southern Hospital for Diseases of Women and Children. Garvock House, Dudley Road, Whalley Range, Manchester, England.

1894.—*SLAVIANSKY, KRONID, M.D. St. Petersburg, Russia. 1898.

1888.—*SMITH, J. GREIG, M.A., C.M., M.B., F.R.S.E. Bristol, England. 1897.

1896.—STERNBERG, GEORGE MILLER, A.M., M.D., LL.D. Surgeon General U. S. Army (Retired). 2005 Massachusetts Avenue, Washington, D.C.

1899.—*STORRS, MELANCTHON, A.M., M.D. (*Founder.* Transferred from Ordinary List.) Hartford, Conn. 1900.

1888.—*Tait, LAWSON, M.D., LL.D., F.R.C.S.E. Birmingham, England. 1899.

1905.—*TAYLOR, WILLIAM HENRY, M.D. *President*, 1888–1889. (*Founder.* Transferred from Ordinary List.) Cincinnati, Ohio. 1910.

1900.—*THORNTON, J. KNOWSLEY, M.B., M.C. Cambridge, England. 1904.

1888.—WILLIAMS, SIR JOHN, BART., M.D., F. R. C. P. Blaen Llynant, Aberystwyth, Wales.

1901.—WEBER, GUSTAV C. E., M.D., LL.D. Willoughby, Ohio.

1889.—VON WINCKEL, F., M.D. Professor of Gynecology and Director of the Royal Hospital for Women; Member of the Supreme Council and of the Faculty of Medicine in the University of Munich. 66 Ungererstrasse, Munich, Germany.

1905.—WYMAN, WALTER, M.D. Surgeon General United States Public Health and Marine Hospital Service. Stoneleigh Court, Washington, D.C.

Total, twenty-four Honorary Fellows.

CORRESPONDING FELLOWS.

1899.—BEUTTNER, OSCAR, M.D. Privat-docent of the Faculty of Medicine. 2 Place de la Fasterie, Geneva, Switzerland.

1903.—CROZEL, G., M.D. Professor Libre of Gynecology. Collonges au Mont d'Or (Rhone), France.

1903.—ELLIS, GUILHERME, M.D. Chief Surgeon to the Real Sociedade de Beneficencia Portuguese Hospital. 6 Rua Aurora, S. Paulo, Brazil, S. A.

1891.—GRIFFIN, HERBERT SPOHN, B.A., M.D. Surgeon to Hamilton City Hospital; Examiner in Obstetrics, University of Toronto. 157 Main Street, Hamilton, Ontario, Canada.

1903.—LANE, HORACE MANLEY, M.D., LL.D. President of Mackenzie College, S. Paulo, Brazil. 184 Rua da Consolacao, S. Paulo, Brazil, S. A.

1891.—MACHELL, HENRY THOMAS, M.D., L.R.C.P. Ed. Lecturer on Obstetrics, Women's Medical College; Surgeon to St. John's Hospital for Women; Physician to Victoria Hospital for Sick Children and to Hillcrest Convalescent Home. 95 Bellevue Avenue, Toronto, Ontario, Canada.

1898.—WRIGHT, ADAM HENRY, B.A., M.D. Univ. Toronto, M.R.C.S., Eng. Professor of Obstetrics in the University of Toronto; Obstetrician and Gynecologist to the Toronto General Hospital and Burnside Lying-in Hospital, *President*, 1891. (Transferred from Ordinary List, 1898.) 30 Gerrard Street, East, Toronto, Ont., Canada.

Total, seven Corresponding Fellows.

ORDINARY FELLOWS.

*Deceased. †Resigned.

1902.—ABRAMS, EDWARD THOMAS, A.M., M.D. Consulting Surgeon to the Lake Superior General Hospital; Member of the Michigan State Medical Society; Member of the American Medical Association. Dollar Bay, Mich.

1890.—ASDALE, WILLIAM JAMES, M.D. Professor of Diseases of Women, Western Pennsylvania Medical College (Medical Department, University of Western Pennsylvania), Pittsburg, Pa. Patterson Heights, Beaver Falls, Pa.

1895.—BACON, JOSEPH BARNES, M.D. Professor of Rectal Diseases at the Post-Graduate Medical School; Instructor in Clinical Surgery in the Medical Department of Northwestern University, Chicago. Macomb, Ill.

Founder.—*BAKER, WASHINGTON HOPKINS, M.D. Philadelphia, Pa. 1904.

1895.—BALDWIN, JAMES FAIRCHILD, A.M., M.D. Surgeon to Grant Hospital, 125 South Grant Avenue. Residence, 405 E. Town Street, Columbus, Ohio.

1903.—Bandler, SAMUEL WYLLIS, M.D. Instructor in Gynecology in the New York Post-Graduate Medical School and Hospital; Adjunct Gynecologist to the Beth Israel Hospital. 134 West Eighty-seventh Street, New York, N.Y.

1889.—†BARROW, DAVID, M.D. Lexington, Ky. 1907.

1907.—BELL, JOHN NORVAL, M.D. Adjunct Professor of Obstetrics and Gynecology at Detroit College of Medicine; Gynecologist to Harper Hospital Polyclinic. Residence, 418 Fourth Avenue; Office, 506 Washington Arcade, Detroit, Mich.

1892.—BLUME, FREDERICK, M.D. Gynecologist to the Allegheny General Hospital and Pittsburg Free Dispensary; Obstetrician to the Roselia Maternity Hospital; Consulting Gynecolo-

gist to the Mercy Hospital; President of the Pittsburg Obstetrical Society, 1892. Office, Jenkins Building, Pittsburg, Pa.

1900.—BONIFIELD, CHARLES LYBRAND, M.D. Professor of Clinical Gynecology in the Medical College of Ohio; President of the Cincinnati Academy of Medicine, 1900; Gynecologist to the Good Samaritan, Christ's, and to Speer's Memorial Hospitals; formerly President of the Cincinnati Obstetrical Society; Secretary of the Section on Obstetrics and Gynecology, American Medical Association, 1901–4; Chairman, 1905; *Vice-president*, 1907. Residence, corner Washington and Gholson Avenues; Office, 409 Broadway, Cincinnati, Ohio.

1896.—BOSHER, LEWIS C., M.D. Professor of Practice of Surgery and Clinical Surgery, Medical College of Virginia; Visiting Surgeon, Memorial Hospital, Richmond. 422 East Franklin Street, Richmond, Va.

Founder.—BOYD, JAMES PETER, A.M., M.D. Professor of Obstetrics, Gynecology and Diseases of Children in the Albany Medical College; Gynecologist to the Albany Hospital; Consulting Obstetric Surgeon to St. Peter's Hospital; Fellow of the British Gynecological Society. 152 Washington Avenue, Albany, N. Y.

1889.—BRANHAM, JOSEPH H., M.D. Professor of Surgery in the Maryland Medical College; Surgeon to the Franklin Square Hospital. 2200 Eutaw Place, corner Ninth Avenue, Baltimore, Md.

1894.—BROWN, JOHN YOUNG, M.D. Professor of Clinical Surgery in Saint Louis University; Chief Surgeon to St. John's Hospital; President of the Mississippi Valley Medical Association, 1898; *Vice-president*, 1905; *President*, 1906; *Executive Council*, 1907–8. Residence, 303 North Grand Avenue; Office, 612 Metropolitan Building, Saint Louis, Mo.

1889.—*BURNS, BERNARD, M.D. Allegheny, Pa. 1892.

1908.—BUTEAU, SAMUEL H., M.D. Former member of California State Board of Medical Examiners; formerly Visiting Surgeon to Almeda County Hospital. Residence, 1052 Telegraph Avenue; Office, 1155 Broadway, Oakland, Cal.

1906.—CANNADY, JOHN EGERTON, M.D. Surgeon to the Charleston General Hospital; Surgeon to McMillan's Hospital,

Charleston; Fellow of the Southern Surgical and Gynecological Association; Non-resident Honorary Fellow of the Kentucky State Medical Association; Fellow West Virginia Medical Association, Virginia Medical Society, American Medical Association, Tri-State Society Virginia and the Carolinas, American Association of Railway Surgeons. Office, Coyle and Richardson Building, Charleston, W. Va.

Founder.—CARSTENS, J. HENRY, M.D. Professor of Obstetrics and Clinical Gynecology in the Detroit College of Medicine; Gynecologist to the Harper Hospital; Attending Physician to the Woman's Hospital; Obstetrician to the House of Providence; President of the Detroit Gynecological Society, 1892. *Vice-president*, 1888–89; *President*, 1895; *Executive Council*, 1896–98. 620 Woodward Avenue, Detroit, Mich.

1895.—CHASE, WALTER BENAJAH, M.D. Gynecologist to the Bushwick Hospital; Attending Surgeon and Gynecologist, Central Hospital and Dispensary; Consulting Gynecologist to the Long Island College Hospital; Councilor to the Long Island College Hospital; Fellow of the Brooklyn Gynecological Society (President, 1893); Member Medical Society County of Kings (President, 1892); Permanent Member Medical Society State of New York; Member of the Brooklyn Pathological Society, and Honorary Member of the Queens Country Medical Society. *Executive Council*, 1899–1904. 1050 Park Place, Borough of Brooklyn, New York.

Founder.—†CLARKE, AUGUSTUS PECK, A.M., M.D. Cambridge, Mass. 1908.

1890.—*COLES, WALTER, M.D. Saint Louis, Mo. 1892.

1904.—CONGDON, CHARLES ELLSWORTH, M.D. Gynecologist to the City Hospital for Women. Office, 859 Humboldt Parkway; Residence, The Markeen, Buffalo, N. Y.

1906.—CRAIG, DANIEL HIRAM, M.D. Surgeon to Out Patients, Free Hospital for Women; Instructor in Gynecology in the Boston Polyclinic. 386 Commonwealth Avenue, Boston, Mass.

1901.—CRILE, GEORGE W., A.M., M.D. Professor of Clinical Surgery in the Western Reserve University Medical College; Surgeon to St. Alexis's Hospital; Associate Surgeon to Lake-

side Hospital. *Vice-president*, 1907. Residence, 1021 Prospect Avenue; Office, Osborn Building, Cleveland, Ohio.

1894.—†CROFFORD, THOMAS JEFFERSON, M.D. Memphis, Tenn. 1909. (See Honorary Fellows.)

1905.—CROSSEN, HARRY STURGEON, M.D. Clinical Professor of Gynecology in Washington University; Gynecologist to Washington University Hospital; Associate Gynecologist to Mullanphy Hospital; Consulting Gynecologist to Bethesda, City and Female Hospitals. Residence, 4477 Delmar Avenue; Office, 310 Metropolitan Building, Saint Louis, Mo.

1897.—†CUMSTON, CHARLES GREENE, B.M.S., M.D. Boston, Mass. 1909.

Founder.—†*CUSHING, CLINTON, M.D. San Francisco, Cal. 1900. 1904.

1903.—DAVIS, JOHN D.S., M.D., LL.D. Professor of Surgery in the Birmingham Medical College; Surgeon to Hillman Hospital; ex-President of Jefferson County Medical Society and of the Board of Health of Jefferson County. *Vice-president*, 1909. 2031 Avenue G., Birmingham, Ala.

1889.—*DAVIS, WILLIAM ELIAS B., M.D. Birmingham, Ala. 1903.

1902.—DEAVER, HARRY CLAY, M.D. Professor of Surgery in the Woman's Medical College of Pennsylvania; Surgeon to the Episcopal and the Stetson Hospitals and to the Children's Hospital of the Mary J. Drexel Home. 1534 North Fifteenth Street, Philadelphia, Pa.

1896.—DEAVER, JOHN BLAIR, M.D. Formerly Assistant Professor of Applied Anatomy at the University of Pennsylvania; Surgeon in Chief to the German Hospital; Consulting Surgeon to the Germantown Hospital. 1634 Walnut Street, Philadelphia, Pa.

1909.—DICKINSON, GORDON K., M.D. Surgeon to the City and Christ Hospitals; Consulting Surgeon to Bayonne Hospital. 280 Montgomery Street, Jersey City, N. J.

1892.—DORSETT, WALTER BLACKBURN, M.D. Professor of Obstetrics and Gynecology in the Marion Sims-Beaumont College of Medicine, Medical Department of Saint Louis University;

Gynecologist to the Missouri Baptist Sanitarium, Evangelical Deaconess's Hospital and the Good Samaritan Hospitals; Consulting Gynecologist to the Saint Louis City and Female Hospitals; President of the Saint Louis Medical Society, 1892; President of the Missouri State Medical Society, 1900; Chairman of the Section on Obstetrics and Gynecology, American Medical Association, 1907. *Vice-president*, 1898; *President*, 1904; *Executive Council*, 1905–1907. Residence, 5070 Washington Avenue; Office, Linmar Building, corner Washington and Vandeventer Avenues, Saint Louis, Mo.

1889.—†*DOUGLAS, RICHARD, M.D. Nashville, Tenn. 1905. 1907.

1892.—*DUFF, JOHN MILTON, A.M., M.D., Ph.D. Pittsburg, Pa. 1904.

1898.—*DUNN, JAMES C., M.D. Pittsburg, Pa. 1907.

1892.—*DUNNING, LEHMAN HERBERT, M.D. Indianapolis, Ind. 1906.

1899.—EASTMAN, THOMAS BARKER, A.B., M.D. Professor of the Medical and Surgical Diseases of Women, Central College of Physicians and Surgeons; Gynecologist to the City Hospital, City Dispensary, and Central Free Dispensary. 309 Pennway Building, Indianapolis, Ind.

1904.—ELBRECHT, OSCAR H., M.D. Superintendent and Surgeon in charge of the Saint Louis Female Hospital. 623–625 Metropolitan Building, Saint Louis, Mo.

1906.—ERDMANN, JOHN FREDERICK, M.D. Clinical Professor of Surgery in University-Bellevue Hospital Medical College; Surgeon to Gouverneur, St. Mark's, and Sydenham Hospitals. 60 West Fifty-second Street, New York, N. Y.

1895.—FERGUSON, ALEXANDER HUGH, M.D. Professor of Surgery at the Chicago Post-Graduate Medical School. Residence, 4619 Grand Boulevard; Office, Suite 300, Reliance Building, 100 State Street, Chicago, Ill.

1903.—FRANK, LOUIS, M.D. Professor of Abdominal and Pelvic Surgery in the Medical Department of Kentucky University; Surgeon to Louisville City Hospital; Surgeon and Gyne-

cologist to the Broadway Infirmary. Residence, 1415 Fourth Avenue; Office, The Atherton, Louisville, Ky.

1890.—FREDERICK, CARLTON CASSIUS, B.S., M.D. Clinical Professor of Gynecology in the Medical Department of Buffalo University; Obstetrician and Gynecologist to the Buffalo Woman's Hospital; Obstetrician to the Widows' and Infants' Asylum; Gynecologist to the Erie County Hospital. 64 Richmond Avenue, Buffalo, N. Y.

1891.—GIBBONS, HENRY, JR., A.M., M.D. Dean and Professor of Obstetrics and Diseases of Women and Children in Cooper Medical College; Consulting Physician to the French and the Children's Hospitals. Residence, 199 Twentieth Avenue; Office, Union Square Building, 350 Post Street, San Francisco, Cal.

1902.—GILLETTE, WILLIAM J., M.D. Professor of Abdominal Surgery and Gynecology in the Toledo Medical College; Surgeon to Robinwood Hospital. 1613 Jefferson Street, Toledo, Ohio.

1895.—GOLDSPOHN, ALBERT, M.S., M.D. Professor of Gynecology, Post-Graduate Medical School; Senior Gynecologist, German Hospital; Attending Gynecologist, Post-Graduate and Charity Hospitals. *Vice-President*, 1901. Residence, 519 Cleveland Avenue; Office, 34 Washington Street, Chicago, Ill.

1904.—GOODFELLOW, GEORGE E., M.D. Division Surgeon San Francisco Railroad. Care of R.W. Kenny, 308 South Broadway, Los Angeles, Cal.

1903.—GUENTHER, EMIL ERNEST, M.D. Senior Assistant Gynecologist and Obstetrician to St. Barnabas's Hospital; Attending Surgeon to the German Hospital, Newark. 159 West Kinney Street, Newark, N. J.

1907.—GUITERAS, RAMON, M.D. Visiting Gynecologist to the City Hospital; Visiting Surgeon to Columbus Hospital; Consulting Surgeon to the French Hospital; Professor of Genitourinary Surgery at the Post-Graduate Medical School and Hospital, New York. 80 Madison Avenue, New York, N. Y.

1892.—*HAGGARD, WILLIAM DAVID, M.D. Nashville, Tenn. 1901.

1900.—HAGGARD, WILLIAM DAVID, JR., M.D. Professor of Gynecology, Medical Department University of Tennessee; Pro-

fessor of Gynecology and Abdominal Surgery, University of the South (Sewanee); Gynecologist to the Nashville City Hospital; President of the Nashville Academy of Medicine; Secretary of the Section on Diseases of Women and Obstetrics, American Medical Association, 1898; Fellow (and Secretary) of the Southern Surgical and Gynecological Association; Member of the Alumni Association of the Woman's Hospital, N. Y. *Vice-president*, 1904. 148 Eighth Avenue, North, Nashville, Tenn.

1906.—HALL, JOSEPH ARDA, M.D. Clinical Assistant in Gynecology at the Miami Medical College, Cincinnati. 628 Elm Street, Cincinnati, Ohio.

1889.—HALL, RUFUS BARTLETT, A.M., M.D. Professor of Gynecology and Clinical Gynecology at the Miami Medical College; Gynecologist to the Presbyterian Hospital; Member of the British Gynecological Association; of the Southern Surgical and Gynecological Association; of the American Medical Association; of the Ohio State Medical Society (President, 1900); of the Cincinnati Academy of Medicine; President of the Cincinnati Obstetrical Society, 1896. *Vice-president*, 1891; *President*, 1900; *Executive Council*, 1904–1909. Berkshire Building, 628 Elm Street, Cincinnati, Ohio.

1902.—HAMILTON, CHARLES SUMNER, A.B., M.D. Professor of the Principles of Surgery in Sterling Medical College; Surgeon to Mt. Carmel and the Children's Hospitals. 1 North Fourth Street, Columbus, Ohio.

1894.—HAYD, HERMAN EMIL, M.D., M.R.C.S. Eng. Gynecologist to the Erie County Hospital; Surgeon to the German Hospital. *Vice-president*, 1903; *Executive Council*, 1908–1910. 493 Delaware Avenue, Buffalo, N. Y.

1908.—HEDGES, ELLIS W., A.B., M.D. Visiting Surgeon to Muhlenberg Hospital, Plainfield, N. J. 703 Watchung Avenue, Plainfield, N. J.

Founder.—*HILL, HAMPTON EUGENE, M.D. Saco, Me. 1894.

1891.—HOLMES, JOSUS BILLINGTON SANDERS, M.D. Professor of Obstetrics in the Southern Medical College; President of the Georgia State Medical Association, 1890; Member of the Southern Surgical and Gynecological Association; Member of the American Medical Association. Valdosta, Ga.

1891.—HOWITT, HENRY, M.D., M.R.C.S. Eng. Surgeon to the Guelph General and St. Joseph's Hospital, Guelph; Member of the British and Ontario Medical Associations; Medical Health Officer for the City of Guelph. *Vice-president*, 1895. 235 Woolwich Street, Guelph, Ontario, Canada.

1905.—HUGGINS, RALEIGH RUSSELL, M.D. Surgeon to St. Francis Hospital. *Vice-president*, 1910. 1018 Westinghouse Building, Pittsburg, Pa.

1895.—HUMISTON, WILLIAM HENRY, M.D. Associate Professor of Gynecology in the Medical Department of Western Reserve University; Gynecologist in Chief to St. Vincent's Charity Hospital; Consulting Gynecologist to the City Hospital; President of the Ohio State Medical Society, 1898. *Executive Council:* 1902–1903, 1908, 1910. *President*, 1909. Residence, 2041 East Eighty-ninth Street; Office, 536 Rose Building, Cleveland, Ohio.

1898.—*HYDE, JOEL W., M.D. Brooklyn, N. Y. 1907.

1901.—ILL, CHARLES L., M.D. Surgeon to German Hospital; Assistant Gynecologist to St. Michael's and St. Barnabas's Hospitals; Obstetrician to St. Barnabas's Hospital, Newark; Assistant Gynecologist to All Souls' Hospital, Morristown. 188 Clinton Avenue, Newark, N. J.

Founder.—ILL, EDWARD JOSEPH, M.D. Surgeon to the Woman's Hospital; Medical Director of St. Michael's Hospital; Gynecologist and Supervising Obstetrician to St. Barnabas's Hospital; Consulting Gynecologist to the German Hospital and the Bnoth Israel Hospital of Newark, N. J., to All Souls' Hospital, Morristown, N. J., and to the Mountain Side Hospital, Montclair, N. J.; Member of the Southern Surgical and Gynecological Association; Vice-president from New Jersey of the Pan-American Medical Congress of 1893; President of the Medical Society of the State of New Jersey, 1907. *Vice-president*, 1893; *President*, 1899; *Executive Council*, 1901–1903. 1002 Broad Street, Newark, N. J.

1897.—*INGRAHAM, HENRY DOWNER, M.D. Buffalo, N. Y. 1904.

1909.—JACOBSON, JULIUS H., M.D. Professor of Gynecology and Clinical Surgery, Medical Department Toledo University; Surgeon to Lucas City Hospital; Gynecologist to St. Vincent's Hospital, Toledo. 2050 Franklin Street, Toledo, O.

Founder.—*JARVIS, GEORGE CYPRIAN, M.D. Hartford, Conn. 1900.

1894.—†JAYNE, WALTER ADDISON, M.D. Denver, Col. 1908

1892.—*JELKS, JAMES THOMAS, M.D. Hot Springs, Ark. 1902.

1891.—JOHNSTON, GEORGE BEN, M.D. Professor of Gynecology and Abdominal Surgery in the Medical College of Virginia; Surgeon to the Old Dominion Hospital; Physician to St. Joseph's Female Orphan Asylum; Consulting Surgeon to the City Free Dispensary; Member of the American Surgical Association (President, 1905); Vice-president of the Southern Surgical and Gynecological Association, 1892 (President, 1897); ex-President of the Richmond Medical and Surgical Society; President of the Virginia State Medical Society, 1897. *Vice-president*, 1897. 407 East Grace Street, Richmond, Va.

1906.—JONAS, ERNST, M.D. Clinical Professor of Surgery in Washington University Medical School; Surgeon in Charge of the Surgical Clinic at the Washington University Hospital; Gynecologist to the Saint Louis Jewish Hospital; Surgeon to the Martha Parsons Free Hospital for Children. Residence, 4495 Westminster Place; Office, 465 North Taylor Avenue, Saint Louis, Mo.

1902.—KEEFE, JOHN WILLIAM, M.D. Attending Surgeon to the Gynecological Department of St. Joseph's Hospital; Attending Surgeon to the Rhode Island Hospital; Consulting Surgeon to the Providence Lying-in Hospital. *Vice-president*, 1908. 259 Benefit Street, Providence, R. I.

1908.—KIRCHNER, WALTER C. G., A.B., M.D. Superintendent and Surgeon in charge of the Saint Louis City Hospital. Residence, City Hospital, 14th and Lafayette Streets, St. Louis, Mo.

1898.—LANGFITT, WILLIAM STERLING, M.D. Surgeon in chief to St. John's Hospital. 608 Fulton Building, Sixth Street and Duquesne Way, Pittsburg, Pa.

1901.—LINCOLN, WALTER RODMAN, B.A., M.D. Lecturer on Gynecology, College of Physicians and Surgeons of Cleveland. Lennox Building, corner Erie Street and Euclid Avenue, Cleveland, Ohio.

1900.—LINVILLE, MONTGOMERY, A.B., M.D. Surgeon to Slemango Valley Hospital; Surgeon to three lines of Pennsylvania Railways. 35 North Mercer Street, New Castle, Pa.

1890.—LONGYEAR, HOWARD WILLIAMS, M.D. Gynecologist to Harper Hospital; Physician to the Woman's Hospital; President of the Detroit Gynecological Society, 1889; Chairman of the Section on Obstetrics and Gynecology of the Michigan State Medical Society, 1892. *Vice-president*, 1893; *President*, 1905; *Executive Council*, 1906–1908. 271 Woodward Avenue, Detroit, Mich.

Founder.—*LOTHROP, THOMAS, M.D. Buffalo, N. Y. 1902.

1896.—LYONS, JOHN ALEXANDER, M.D. Instructor in Gynecology at the Post-Graduate Medical School; Gynecologist and Lecturer to Nurses at the Chicago Hospital. 4118 State Street, Chicago, Ill.

1891.—*MCCANN, JAMES, M.D. Pittsburg, Pa. 1893.

1898.—*MCCANN, THOMAS, M.D. Pittsburg, Pa. 1903.

Founder.—MCMURTRY, LEWIS SAMUEL, A.M., M.D., LL.D. Professor of Gynecology in the Hospital College of Medicine; Gynecologist to Sts. Mary and Elizabeth Hospital; Fellow of the Edinburgh Obstetrical Society; Fellow of the British Gynecological Society; Corresponding Member of the Obstetrical Society of Philadelphia and of the Gynecological Society of Boston; Member (President, 1891) of the Southern Surgical and Gynecological Association; President American Medical Association, 1905. *Executive Council*, 1891–1892, 1895–1905; *President*, 1893. Suite 542, The Atherton, Louisville, Ky.

Founder.—MANTON, WALTER PORTER, M.D. Professor of Clinical Gynecology and Adjunct Professor of Obstetrics, Detroit College of Medicine; Gynecologist to Harper Hospital and the Eastern Michigan Asylum for the Insane; Vice-president of Medical Board of the Woman's Hospital and Foundling's Home; Consulting Gynecologist to the Northern Michigan Asylum and St. Joseph's Retreat; Gynecic Surgeon to the House of the Good Shepherd; President of the Detroit Academy of Medicine, 1892–1894; President of the Detroit Gynecological Society, 1890; Fellow of the British Gynecological Society; Fellow of the Royal Microscopical Society and of the Zoological Society of London. *Vice-president*, 1894. 32 Adams Avenue, W., Detroit, Mich.

Founder.—†*MAXWELL, THOMAS JEFFERSON, M.D. Keokuk, Iowa. 1902. 1905.

Founder.—MILLER, AARON BENJAMIN, M.D. Professor of Gynecology in the Medical Department of Syracuse University; Gynecologist to St. Joseph's Hospital, House of the Good Shepherd and Dispensary. *Vice-president*, 1899, 1904; *President*, 1910. 326 Montgomery Street, Syracuse, N. Y.

1905.—MILLER, JOHN D., M.D. Assistant to the Chair of Clinical Gynecology in the Medical College of Ohio, University of Cincinnati. 172 W. McMillan Street, Cincinnati, Ohio.

1896.—*MOONEY, FLETCHER D., M.D. Saint Louis, Mo., 1897.

1907.—MORIARTA, DOUGLAS C., M.D. Senior Surgeon to Saratoga Hospital; Surgeon in chief to Saint Christian Hospital for Children; Director of State Experimental Station at Saratoga. 511 Broadway, Saratoga Springs, N. Y.

1904.—MORRIS, LEWIS COLEMAN, M.D. Professor of Gynecology and Abdominal Surgery in the Birmingham Medical College; Secretary, Medical Association State of Alabama, 1904; Member of Jefferson County Board of Health. 1203 Empire Building, Birmingham, Ala.

1890.—MORRIS, ROBERT TUTTLE, A.M., M.D. Professor of Surgery in the New York Post-Graduate Medical School and Hospital. *Vice-president*, 1892; *Executive Council*, 1906, 1908–1910; *President*, 1907. 616 Madison Avenue, New York, N. Y.

Founder.—*MOSES, GRATZ ASHE, M.D. Saint Louis, Mo. 1901. (See Honorary Fellows.)

1894.—MURPHY, JOHN BENJAMIN, A.M., M.D. Professor of Surgery and Head of Department North Western University; Chief Surgeon to Mercy Hospital and St. Joseph's Hospital; Attending Surgeon to Wesley Hospital and Columbus Hospital; Consulting Surgeon to Alexian Brothers', Cook County Hospitals, etc. Residence, 3305 Michigan Avenue; Office, 400 Reliance Building, 100 State Street, Chicago, Ill.

Founder.—†*MYERS, WILLIAM HERSCHEL, M.D. Fort Wayne, Ind. 1904. 1907. (See Honorary Fellows.)

1904.—NEWMAN, LOUIS EDWARD, A.M., M.D. President of the Saint Louis Obstetrical and Gynecological Society, 1904. 5381 Waterman Avenue, Saint Louis, Mo.

1897.—NICHOLS, WILLIAM R., M.D. 295 Edmunton Street, Winnipeg, Manitoba, Canada.

1896.—NOBLE, GEORGE HENRY, M.D. Gynecologist to the Grady Hospital; Secretary to the Section on Obstetrics and Gynecology of American Medical Association, 1897; Member of the Southern Surgical and Gynecological Association. 131 and 133 South Pryor Street, Atlanta, Ga.

1903.—NOBLE, THOMAS BENJAMIN, M.D. Professor of Abdominal Surgery in the Central College of Physicians and Surgeons; Consultant in the Diseases of Women at the City Hospital, City Dispensary, and Protestant Deaconess's Hospital, Indianapolis. 427 Newton Claypool Building, Indianapolis, Ind.

1907.—OLMSTED, INGERSOLL, M.D. Surgeon to the City and St. Joseph's Hospitals, Hamilton, Ont. 215 South James St., Hamilton, Ontario, Canada.

1889.—†PAINE, JOHN FANNIN YOUNG, M.D. Galveston, Texas. 1904.

1899.—PANTZER, HUGO OTTO, M.D. Professor of Clinical Gynecology in the Indiana Medical College, Medical Department of Purdue University; Gynecologist to City Hospital, City Dispensary, St. Vincent's and Deaconess's Hospitals; Member of Indianapolis, Indiana State, Ohio Valley, Mississippi Valley, Medical Associations and Indianapolis Gynecological Association. *Executive Council*, 1907–1910. 224 North Meridian Street, Indianapolis, Ind.

1890.—PEARSON, WILLIAM LIBBY, M.D. 713 Union Street, Schenectady, N. Y.

1899.—PFAFF, ORANGE G., M.D. Adjunct Professor of Obstetrics and Diseases of Women in the Medical College of Indiana; Gynecologist to the City, Deaconess's, and St. Vincent's Hospitals. 1337 North Pennsylvania Street, Indianapolis, Ind.

1898.—PORTER, MILES F., M.D. Professor of Surgery in the Indiana Medical College, Medical Department of Purdue University; Surgeon to Hope Hospital; ex-President Indiana State Medical Society. *Vice-president*, 1902. 207 West Wayne Street, Fort Wayne, Ind.

Founder.—POTTER, WILLIAM WARREN, M.D. Consulting Gynecologist to the Woman's Hospital; Consulting Surgeon to the Buffalo General Hospital; President and Examiner in Obstetrics and Gynecology, New York State Board of Medical Examin-

ers; Chairman of Section of Obstetrics and Diseases of Women, American Medical Association, 1890; President of the Buffalo Obstetrical Society, 1884–1886; Member of the Southern Surgical and Gynecological Association; President of the Medical Society of the State of New York, 1891; Executive President of the Section of Gynecology and Abdominal Surgery, First Pan-American Medical Congress (1893). *Secretary*, 1888–1910. 238 Delaware Avenue, Buffalo, N. Y.

1903.—POUCHER, JOHN WILSON, M.D. Consulting Surgeon to Vassar Brothers Hospital, Poughkeepsie. 339 Mill Street, Poughkeepsie, N. Y.

Founder.—PRICE, JOSEPH, M.D. Physician in charge of the Obstetrical and Gynecological Department of the Philadelphia Dispensary; Member of the Southern Surgical and Gynecological Association; Honorary Fellow of the Medical Society of the State of New York; Honorary Fellow of the South Carolina Medical Society; Honorary Fellow of the Virginia Medical Society; Member of the British Gynecological Association and of the Edinburgh Obstetrical Society. *Executive Council*, 1894–1895; *President*, 1896. 241 North Eighteenth Street, Philadelphia, Pa.

1904.—REDER, FRANCIS, M.D. Chief of Clinic, Department of Rectal Diseases, Medical Department of Washington University; Surgeon to Burlington Rink. 4629 Cook Avenue, Saint Louis, Mo.

Founder.—REED, CHARLES ALFRED LEE, A.M., M.D. Professor of Gynecology and Abdominal Surgery in the Cincinnati College of Medicine and Surgery and in the Woman's Medical College of Cincinnati; Surgeon to the Cincinnati Free Surgical Hospital for Women; Secretary-General of the First Pan-American Medical Congress, 1893; Member of the Southern Surgical and Gynecological Society; Fellow of the British Gynecological Society; President of the American Medical Association, 1901. *Executive Council*, 1890–1897; *President*, 1898. Rooms 60 and 62, The Groton, N. E. corner Seventh and Race Streets, Cincinnati, Ohio.

1905.—REES, CHARLES MAYRANT, M.D. Professor of Abdominal Surgery and Gynecology in Charleston Medical School; Member of the Medical Society of the State of South Carolina; Member of the American Medical Association and of the Southern

Surgical and Gynecological Association. Residence, 169 Broad Street; Office, 98 Wentworth Street, Charleston, S. C.

1896.—*RHETT, ROBERT BARNWELL, JR., M. D. Charleston, S. C. 1901.

1889.—*ROHE, GEORGE HENRY, M.D. Baltimore, Md. 1899.

1909.—ROSENTHAL, MAURICE I., M.D. Surgeon to Saint Joseph's Hospital. 336 W. Berry Street, Fort Wayne, Ind.

1892.—ROSENWASSER, MARCUS, M.D. Dean and Professor of Diseases of Women and Abdominal Surgery in the University of Wooster; Gynecologist to the Cleveland Hospital for Women and Children; Consulting Gynecologist to the City Hospital; Member of the American Medical and Ohio State Medical Associations. *Vice-president*, 1903. Residence, 722 Woodland Avenue; Office, 456 Lennox Building, Cleveland, Ohio.

1890.—ROSS, JAMES FREDERICK WILLIAM, M.D.C.M., L.R.C.P., Lond., Eng. Professor of Gynecology, University of Toronto; Chief of Gynecological Service, Toronto General Hospital; Late President Ontario Medical Association; President Academy of Medicine, Toronto; Fellow of the Edinburgh Obstetrical Society. *Executive Council*, 1892–1896, 1905–1907; *President*, 1897. 481 Sherbourne, Corner Wellesley Street, Toronto, Ont., Canada.

1902.—RUNYAN, JOSEPH PHINEAS, M.D. Division Surgeon to the Choctaw, Oklahoma and Gulf Railroad; Secretary of the Arkansas State Medical Association, President, 1904. 1514 Schiller Avenue, Little Rock, Ark.

1906.—RUTH, CHARLES EDWARD, M.D. Professor of Surgery and Clinical Surgery in the Keokuk Medical College (College of Physicians and Surgeons); Surgeon to the Chicago and Rock Island Pacific Railway. Ponce, Porto Rico.

1903.—SADLIER, JAMES EDGAR, M.D.. Consulting Surgeon to Highland Hospital, Poughkeepsie. *Vice-president*, 1909. 295 Mill Street, Poughkeepsie, N. Y.

1909.—SANES, K. ISADORE, Gynecologist to the West Penn Hospital; Consulting Gynecologist to the Montefiore Hospital, Pittsburg. Residence, 345 McKee Place; Office, Park Building, Pittsburg, Pa.

1904.—SCHWARZ, HENRY, M.D. Professor of Obstetrics, Medical Department of Washington University. 440 North Newstead Avenue, Saint Louis, Mo.

1901.—SCOTT, N. STONE, A.M., M.D. Professor of Surgery, College of Physicians and Surgeons, Cleveland; Consulting Surgeon to City Hospital; Consulting Surgeon to St. John's Hospital; Surgeon to the Out-patient Department of Cleveland General Hospital. Residence, 531 Prospect Avenue; Office, 603–604 Citizens' Building, Cleveland, Ohio.

1895.—SELLMAN, WILLIAM ALFRED BELT, M.D. Professor of the Diseases of Women and Children at the Baltimore University School of Medicine; Member of the Medical and Chirurgical Faculty of Maryland; also of the Baltimore Medical and Surgical Association; the Gynecological and Obstetrical Association of Baltimore; the Clinical Society; the Baltimore Journal Club; and of the American Medical Association. *Vice-president*, 1908; *Executve Council*, 1909–1910. 5 East Biddle Street, Baltimore, Md.

1889.—*SEYMOUR, WILLIAM WOTKYNS, A.B., M.D. Troy, N. Y. 1904.

1908.—SHERILL, JOSEPH GARLAND, A.M., M.D. Professor of Surgery and Clinical Surgery at the University of Louisville. Office, Suite 542, The Atherton, Louisville, Ky.

1902.—SIMONS, MANNING, M.D. Professor of Clinical Surgery in the Medical College of the State of South Carolina; Surgeon to St. Francis Xavier's Infirmary and to the City Hospital. Residence, 22 Rutledge Avenue; Office, 111 Church Street, Charleston, S. C.

1899.—SIMPSON, FRANK FARROW, A.B., M.D. Gynecologist to the Allegheny General Hospital; Consulting Gynecologist to the Columbia Hospital. *Vice-president*, 1906. 1112 Bessemer Building, Pittsburg, Pa.

1901.—SKEEL, ROLAND EDWARD, M.D. Associate Clinical Professor of Gynecology in Western Reserve University; Gynecologist to St. Luke's, City, and Lutheran Hospitals; Consulting Surgeon to the Lakewood Hospital. 314 Osborn Building, Cleveland, O.

1891.—SMITH, CHARLES NORTH, M.D. Professor of Obstetrics and Clinical Gynecology in the Toledo Medical College;

Gynecologist to St. Vincent's Hospital. *Vice-president*, 1910. 234 Michigan Street, Toledo, Ohio.

1904.—SMITH, WILLIAM S., M.D. Professor of Gynecology in the Maryland Medical College; Gynecologist to Franklin Square Hospital. 528 Hanover Street, Baltimore, Md.

1901.—STAMM, MARTIN, M.D. Professor of Operative and Clinical Surgery in the College of Physicians and Surgeons, Cleveland. 316 Napoleon Street, Fremont, Ohio.

1902.—STARK, SIGMAR, M.D. Professor of Obstetrics and Clinical Gynecology in the Cincinnati College of Medicine and Surgery; Gynecologist to the Jewish Hospital. 1108 East McMillan Street, Cincinnati, Ohio.

1908.—STEWART, DOUGLAS HUNT, M.D. Attending Surgeon at Saint Elizabeth's Hospital; Attending Gynecologist to the Red Cross Hospital. Residence, 128 West 86th Street, New York, N. Y.

Founder.—*STORRS, MELANCTHON, A.M., M.D. Hartford Conn. (See Honorary List, 1899.) 1900.

1904.—SUTCLIFFE, JOHN ASBURY, A.M., M.D. Consulting Surgeon to St. Vincent's Infirmary; Consultant in Genitourinary Diseases to the City Hospital and to the Protestant Deaconess's Hospital. 824 North Delaware Street, Indianapolis, Ind.

1899.—SWOPE, LORENZO W., M.D. Surgeon to the Consolidated Traction Company; Chief Surgeon to Wabash Railroad, Pittsburg Division; Surgeon to Western Pennsylvania Hospital; Surgeon to Passavant Hospital; Member of the Allegheny County Medical Society; Member of the American Medical Association. Residence, 4629 Bayard Street; Office, 1105 Park Building, Pittsburg, Pa.

1908.—TALLEY, DYER FINDLEY, A.M., M.D. Associate Professor of Surgery at Birmingham Medical College; Member of State Board of Medical Examiners, State Board of Health and Board of Censors. Residence, 1808 Seventh Avenue, Birmingham, Ala.

1901.—TATE, MAGNUS ALFRED, M.D. Professor of Obstetrics Miami Medical College; President Cincinnati Academy of Medicine. 1905. 19 West Seventh Street, Cincinnati, Ohio.

Founder.—†*TAYLOR, WILLIAM HENRY, M.D., Ph.D. Cincinnati, Ohio. 1898. (See Honorary Fellows.) 1910.

1895.—THOMPSON, FRANK DANIEL, M.D. Professor of Gynecology in the Medical Department of Fort Worth University. 412 Adams Street, Fort Worth, Texas.

1908.—TORRANCE, GASTON, M.D. Surgeon to Saint Vincent's and the Hillman Hospitals in Birmingham. Residence, 1626 Eleventh Avenue, South; Office, 325 Woodward Building, Birmingham, Ala.

Founder.—*TOWNSEND, FRANKLIN, A.M., M.D. Albany, N. Y. 1895.

1907.—VANCE, AP MORGAN, M.D. Surgeon to Kentucky Masonic Widow's and Orphan's Home and Infirmary; Surgeon to Saints Mary and Elizabeth Hospital, Louisville. 835 South Fourth Avenue, Louisville, Ky.

Founder.—VANDER VEER, ALBERT, A.M., M.D., Ph.D. Professor of Didactic, Clinical, and Abdominal Surgery in the Albany Medical College; Attending Surgeon to the Albany Hospital; Consulting Surgeon to St. Peter's Hospital; Fellow of the American Surgical Association (President, 1906); Fellow of the British Gynecological Society; Member of the Southern Surgical and Gynecological Association; Corresponding Member of the Boston Gynecological Society. *Executive Council*, 1889–1891, 1895–1905; *President*, 1892. 28 Eagle Street, Albany, N. Y.

1909.—WADE, HENRY ALBERT, M.D. Surgeon to Bethany Deaconess's Hospital; Associate Gynecologist to Williamsburg Hospital, Brooklyn. 495 Greene Avenue, Brooklyn, N.Y.

1909.—WALDO, RALPH, M.D. Gynecologist to Lebanon Hospital; Associate Surgeon to the Woman's Hospital of the State of New York. 54 W. 71st Street, New York, N.Y.

1891.—WALKER, EDWIN, M.D., Ph.D. Gynecologist to the Evansville City Hospital; President of the Indiana State Medical Society, 1892; Member of the American Medical Association and of the Mississippi Valley Medical Association; Member of the Southern Surgical and Gynecological Association; First Vice-president American Medical Association, 1907. *Vice-president*, 1901. 712 South Fourth Street, Evansville, Ind.

1907.—WALKER, HENRY ORLANDO, M.D. Secretary and Professor of Surgery at the Detroit College of Medicine; Surgeon to Harper Hospital; Surgeon to Saint Mary's Hospital, Detroit. Office, 612 Washington Arcade, Detroit, Mich.

1907.—WEISS, EDWARD ALOYSIUS, M.D. Assistant Gynecologist to Mercy Hospital; Obstetrician to Roselia Maternity Hospital; Associate Professor of Gynecology at Western Pennsylvania Medical College, Pittsburg, Pa. 714 Jenkins Building, Pittsburg, Pa.

1889.—WENNING, WILLIAM HENRY, A.M., M.D. Clinical Professor of Gynecology at the Miami Medical College; Chief of Staff and Gynecologist to St. Mary's Hospital. 5 Garfield Place, Cincinnati, Ohio.

Founder.—WERDER, XAVIER OSWALD, M.D. Professor of Gynecology at the Western Pennsylvania Medical College (Medical Department, University of Western Pennsylvania); Consulting Gynecologist at the Allegheny General Hospital; Gynecologist to the Mercy Hospital and Pittsburg Free Dispensary; Obstetrician to the Roselia Maternity Hospital; Consulting Gynecologist to St. Francis's Hospital; Consulting Surgeon to the South Side Hospital. *Treasurer*, 1888–1910. 524 Penn Avenue, Pittsburg, Pa.

1904.—WEST, JAMES NEPHEW, M.D. Professor of Diseases of Women and Secretary of the Faculty at the New York Post-Graduate Medical School and Hospital. *Vice-president*, 1906. 71 West Forty-ninth Street, New York.

1896.—WESTMORELAND, WILLIS FOREMAN, M.D. Professor of Surgery at the Atlanta Medical College. Suite 241, Equitable Building, Atlanta, Ga.

1897.—WHITBECK, JOHN F. W., M.D. Gynecologist to the Rochester City Hospital; Commissioner of the Board of Health. 322 East Avenue, Rochester, N. Y.

1909.—YATES, H. WELLINGTON, M.D. Lecturer on Obstetrics at Detroit College of Medicine; Obstetrician to St. Mary's Hospital. 1360 Fort Street, Detroit, Mich.

1907.—ZIEGLER, CHARLES EDWARD, A.M., M.D. Professor of Obstetrics in the University of Pittsburg; Obstetrician to the

Columbia Hospital; Obstetrician in charge of the Reineman Maternity Hospital; Assistant Gynecologist to the Allegheny General Hospital; Consulting Obstetrician and Gynecologist to the Dixmont Hospital for the Insane. 354 Highland Avenue, Pittsburg, Pa.

1900.—ZINKE, ERNST GUSTAV, M.D. Professor of Obstetrics and Clinical Midwifery in the Medical College of Ohio, University of Cincinnati; Obstetrician and Gynecologist to the German Hospital; Obstetrician to the Maternity Hospital. *President*, 1908; *Executive Council*, 1909–1910. 4 West Seventh Street, Cincinnati, Ohio.

Total, one hundred and twenty-two Ordinary Fellows.

MINUTES OF THE PROCEEDINGS

AT THE

TWENTY-SECOND ANNUAL MEETING

OF THE

AMERICAN ASSOCIATION

OF

OBSTETRICIANS AND GYNECOLOGISTS

HELD AT THE

HOTEL ANTHONY, FORT WAYNE, INDIANA,

SEPTEMBER 21, 22, AND 23, 1909

TWENTY-SECOND ANNUAL MEETING.

SEPTEMBER 21, 22 AND 23, 1909.

The following-named Fellows were present:

ABRAMS, EDWARD T.	DOLLAR BAY, MICH.
BALDWIN, JAMES F.	COLUMBUS.
BELL, JOHN N.	DETROIT.
BROWN, JOHN YOUNG.	SAINT LOUIS.
CARSTENS, J. HENRY.	DETROIT.
CONGDON, CHARLES E.	BUFFALO.
DORSETT, WALTER B.	SAINT LOUIS.
FERGUSON, ALEXANDER HUGH	CHICAGO.
FREDERICK, CARLTON C.	BUFFALO.
GOLDSPOHN, ALBERT.	CHICAGO.
HUGGINS, RALEIGH R.	PITTSBURG.
HUMISTON, WILLIAM H.	CLEVELAND.
ILL, EDWARD J.	NEWARK.
JACOBSON, JULIUS H.	TOLEDO.
JONAS, ERNST.	SAINT LOUIS.
KEEFE, JOHN W.	PROVIDENCE.
KIRCHNER, WALTER C. G.	SAINT LOUIS.
LONGYEAR, HOWARD W.	DETROIT.
MILLER, AARON B.	SYRACUSE.
MILLER, JOHN D.	CINCINNATI.
MORRIS, ROBERT T.	NEW YORK.
NOBLE, THOMAS B.	INDIANAPOLIS.
PANTZER, HUGO O.	INDIANAPOLIS.
PFAFF, ORANGE G.	INDIANAPOLIS.
PORTER, MILES F.	FORT WAYNE.
POTTER, WILLIAM WARREN.	BUFFALO.
POUCHER, JOHN W.	POUGHKEEPSIE.
ROSENTHAL, MAURICE I.	FORT WAYNE.
SADLIER, JAMES E.	POUGHKEEPSIE.
SANES, K. ISADORE.	PITTSBURG.
SELLMAN, WILLIAM A. B.	BALTIMORE.
SMITH, CHARLES N.	TOLEDO.

SWOPE, LORENZO W. . . . . PITTSBURG.
WALKER, EDWIN . . . . . EVANSVILLE.
YATES, H. WELLINGTON . . . . . DETROIT.
ZINKE, E. GUSTAV . . . . . CINCINNATI.

Letters or messages of regret were received from the following-named Fellows:

Honorary.—Cordes, August Elisee; Leopold, G.; Schultze, B. S.; Sinclair, Sir William Japp; Williams, Sir John; Wyman, Walter, Surgeon General Public Health and Marine Hospital Service.

Corresponding.—Crozel, G.; Griffin, Herbert S.; Wright, Adam Henry.

Ordinary.—Bandler, Samuel Wyllis; Blume, Frederick; Bonifield, Charles Lybrand; Cannaday, John Egerton; Chase, Walter Benajah; Crile, George W.; Davis, John D. S.; Elbrecht, Oscar H.; Erdmann, John Frederick; Frank, Louis; Hall, Rufus Bartlett; Hayd, Herman Emil; Ill, Charles L.; Linville, Montgomery; McMurtry, Lewis S.; Manton, Walter Porter; Murphy, John Benjamin; Price, Joseph; Reder, Francis; Reed, Charles Alfred Lee; Rosenwasser, Marcus; Ross, James Frederick William; Schwarz, Henry; Sherill, Joseph Garland; Skeel, Roland Edward; Stewart, Douglas Hunt; Sutcliffe, John Asbury; Talley, Dyer Findley; Tate, Magnus Alfred; Torrance, Gaston; Vance, Ap Morgan; Vander Veer, Albert; Wenning, William Henry; Werder, Xavier Oswald; West, James Nephew.

The following-named registered guests were made members by invitation:

Banning, Carrie B. . . . . Fort Wayne.
Barnett, Charles E. . . . . "
Barnhill, W. D. . . . . "
Barry, George A. . . . . "
Beall, C. G. . . . . "
Blosser, H. V. . . . . "
Bolman, R. Martin. . . . . "
Bruggeman, H. O. . . . . "
Bulson, A. E., Jr. . . . . "
Carey, W. W. . . . . "
Dancer, Charles R. . . . . "
Dinnen, J. Frank . . . . . "
Dinnen, James M. . . . . "

Ditton, J. W.	Fort Wayne.
Drayer, L. P.	"
Edwards, E. E.	"
English, C. H.	"
Enslen, William	"
Erwin, H. G.	"
Gilpin, J. H.	"
Gordon, C. W.	"
Hamilton, A.	"
Havice, S. H.	"
Henderson, E. G.	"
Johns, C. T.	"
Kaadt, C. F.	"
Kane, Alfred	"
Kannel, J. W.	"
Kimmel, C. C.	"
McArdle, J. E.	"
McEvoy, J. B.	"
McHugh, J. E.	"
McKeeman, Robert B.	"
McOscar, E. J.	"
Martz, C.	"
Mikessel, A. L.	"
Morgan, E. E.	"
Morris, Isaac E.	"
Mouser, H. K.	"
Pulliam, J. M.	"
Rhamy, B. W.	"
Schick, G. E.	"
Schilling, Carl	"
Stemen, G. B.	"
Van Buskirk, E. M.	"
Van Sweringen, B.	"
Van Sweringen, Garrett	"
Weaver, Ben Perley	"
Wheelock, K. K.	"
Whery, Mary A.	"
Whery, W. P.	"
Allen, H. R.	Indianapolis.
Andrews, G. R.	Muncie, Ind.
Beavers, S. D.	Decatur, Ind.
Boyers, J. S.	Decatur, Ind.

Brattain, G. M.	Antwerp, O.
Brudi, G. G.	New Haven, Ind.
Denison, R. C.	Coesse, Ind.
Dukes, J. T.	Portland, Ind.
Dyar, E. W.	Ossian, Ind.
Edwards, Austin,	Middle Point, O.
Foster, C. S.	Pittsburg.
Good, Charles H.	Huntington, Ind.
Graham, Hannah M.	Indianapolis.
Grayston, B. H. B.	Huntington, Ind.
Hoover, C. L.	Alliance, O.
King, W. F.	Columbia City, Ind.
Lobenstine, R. W.	New York.
Longworth, M. J.	Saint Marys, O.
Linvill, D. S.	Columbia City, Ind.
Mentzer, S. E.	Monroeville, Ind.
Morgan, R. J.	Van West, O.
Myers, I. N.	Maples, Ind.
Nolt, E. N.	Columbia City, Ind.
Powell, W. S.	Defiance, O.
Price, C. R.	Geneva, Ind.
Radcliffe, T. E.	Bourbon, Ind.
Rawles, L. T.	Huntington, Ind.
Reeder, G. A.	Harlan, Ind.
Reid, Charles B.	Van Wert, O.
Ritter, Mary	Angola, Ind.
Senseney, H. M.	Baltimore.
Shufferton, F. A.	Saint Marys, O.
Shumaker, W. F.	Butler, Ind.
Stametz, Z. H.	Auburn, Ind.
Stemen, C. B.	Kansas City.
Swartz, W. W.	Auburn, Ind.
Thompson, W. H.	Harlan, Ind.
Ward, H. D.	Angola, Ind.
Wilking, S. V.	Roanoke, Ind.
Wood, T. F.	Angola, Ind.
Wright, C. L.	Huntington, Ind.

FIRST DAY—*Tuesday, September* 21, 1909.

Morning Session.—The Association met at the Hotel Anthony at 9:30, and was called to order by the president, Dr. William H. Humiston, Cleveland.

Dr. H. O. Bruggeman, President of the Fort Wayne Medical Society, was introduced, and delivered the following

ADDRESS OF WELCOME.

Mr. President and Gentlemen: When I glanced over your program this morning and saw the amount of work you were expected to accomplish, I realized that this was not an opportune time for anyone outside of your membership to deliver anything beyond the briefest greetings. I simply want to say to you that I esteem it a high honor and a great privilege to be able, on behalf of my Fort Wayne colleagues, to extend to you a most cordial, a most hearty welcome. We trust that this session of your Association will take its place in benefit, pleasure, and profit with the meetings which have preceded it. We hope you will find here evidences of a fraternal welcome by our Society and a deep interest which every member of that society feels in your work.

We are fully aware of the good work, the great work, which your Association is accomplishing for the advancement of scientific medicine, and in common with the rest of the medical profession we feel ourselves to be your debtors. We believe this Association at this session will add much of value to the annals of medicine, and not only will our profession be benefited thereby, but all branches of our community will reap that benefit which comes from increased medical knowledge. (Applause.)

The Mayor of the city has been detained by an injunction suit in the Circuit Court, hence cannot be here; but he has asked me, as a member of his cabinet, to offer you the open gates and keys of the city, and to tell you how sorry he feels in not being able to be with you on this occasion. (Applause.)

RESPONSE BY DR. JAMES EDGAR SADLIER.

Mr. President, Dr. Bruggeman, and Fellows of the American Association of Obstetricians and Gynecologists: It gives me great pleasure to suggest to Dr. Bruggeman and the members of the Fort Wayne Medical Society, that the Fellows of this Association are deeply appreciative of the hearty and cordial welcome that we have received at their hands through their distinguished president. One year ago, when it was unanimously decided to make this city our meeting place for 1909, we felt that the

invitation was extended in that spirit which prompted each and every one of us in believing that when the time arrived to hold this, our twenty-second annual meeting, we would be assured not only a hearty welcome, but an interest and zeal upon the part of the medical fraternity of Fort Wayne that would revert not only to the credit of this organization, but to this city and its skilled coterie of medical men. In this we have not been disappointed. The full attendance here this morning testifies to a royal welcome.

Each year, as this Association has met to consider and discuss the important questions appertaining to the scientific developments in the particular branches of our profession in which the members of this organization are working and striving to do most for suffering humanity, it has seemed as though that meeting had surpassed any of its predecessors in the abundance of papers, spirit of discussion, and the scientific benefit gained, not only to the membership but to the profession at large. This meeting I am sure will be one that we shall always be proud to recall as being a step still farther in advance, replete not only with advanced scientific thought and discussion which shall ultimately be of inestimable value to suffering humanity, but, likewise, one that will go down in the history of the Association as one of our better sessions. The fact that the welcome extended to us has not been surpassed by the medical fraternity of any city in which heretofore we have met encourages me in the belief, hence I beg to reiterate our appreciation of the kind expressions of welcome, loyalty, and good cheer extended to us by the members of our profession at Fort Wayne. (Applause.)

Papers were then read as follows:

1. "The Advantage of the Combined Intra- and Extraperitoneal Ureterolithotomy for the Removal of Stones from the Lower Ureter," by Ernst Jonas, Saint Louis.

The paper was discussed by Drs. Brown, Ferguson, Longyear, Porter, Frederick, Rosenthal, Pantzer, Keefe, Brown (again), Sanes, and in closing by the author.

The Secretary read a telegram from Dr. Joseph Price, Philadelphia, stating that he was too ill to travel and regreting his inability to attend the meeting.

On motion of Dr. Zinke, seconded by several Fellows, the secretary was instructed to send Dr. Price an answer regretting his inability to be present, expressing sympathy for him in his illness, and tendering best wishes for his speedy recovery.

2. "Surgical Treatment of Tumors of the Bladder," by John W. Keefe, Providence.

This paper was discussed by Drs. Frederick, Jonas, Rosenthal, and in closing by the author.

On motion, the Association at 1 o'clock took a recess until 2:30 P. M.

Afternoon Session, 2:30 o'clock.

The President in the Chair.

3. "Operative Enlargement of the Pelvis of the Nonpregnant Woman," by John N. Bell, Detroit.

Discussed by Drs. Zinke, Goldspohn, Porter, Lobenstine, and in closing by the essayist.

4. "Chylous Cysts of the Mesentery," by Charles E. Congdon, Buffalo.

Discussed by Drs. Porter, Morris, Jonas, Ferguson, and in closing by the author.

5. "The Embryo Abdominal Surgeon, with Inadequate Preparation and Knowledge," by J. Henry Carstens, Detroit.

Discussed by Drs. Morris, Frederick, Longyear, Sadlier, Ferguson, Goldspohn, Zinke, and the discussion was closed by the author.

6. "When Shall We Operate for Ectopic Gestation?" by Raleigh R. Huggins, Pittsburg.

Discussed by Drs. Longyear, Pantzer, Humiston, Noble, Miller, Brown, Goldspohn, Frederick, Rosenthal, Zinke, Carstens, and in closing by the essayist.

7. "Artificial Anus Following Operation for Intussusception—Three Years Complete Occlusion of Large Bowel—Method of Restoring Continuity," by John Young Brown, Saint Louis.

Discussed by Drs. Goldspohn, Jonas, Ferguson, Keefe, and in closing by the author.

On motion, the Association at 5:45 o'clock took a recess until 7:30 P. M.

Evening Session, 7:30 o'clock.

The President in the Chair.

8. "How Can We Best Educate Women to Seek Early Relief for Carcinoma of the Uterus?" by C. C. Frederick, Buffalo.

As Dr. Frederick was called home, the discussion on his paper was postponed until the next day; it being voted that it be taken up at the call of the president.

9. "Nephrocoloptosis, with Lantern Demonstration," by Howard W. Longyear, Detroit.

10. "Rupture of the Uterus During Labor," by Ralph Waldo Lobenstine, New York, by invitation.

This paper was discussed by Drs. Zinke, Ill, and in closing by the author.

On motion, the Association at 10 o'clock took a recess until 9:30 A. M. Wednesday.

SECOND DAY—*Wednesday, September 22, 1909.*

Morning Session.—The Association met at 9:30 with the President in the Chair.

11. "Some Phases and Case Reports of Puerperal Sepsis," by Hugo O. Pantzer, Indianapolis.

Discussed by Drs. Goldspohn, Dorsett, Carstens, Jonas, Kirchner, Longyear, Morris, Porter, Humiston, Graham, and in closing by the author.

12. "Specimen of Calcareous Degeneration of Fibroid Uterus," by Walter B. Dorsett, Saint Louis.

Discussed by Drs. Carstens, Pantzer, and in closing by the author.

13. "Ovarian Pregnancy at Term," by Walter C. G. Kirchner, Saint Louis.

Discussed by Drs. Zinke, Miller, Morris, and in closing by the author.

14. "A Study of Four Hundred and Forty Operations on the Appendix with Remarks, by Edward J. Ill, Newark.

15. "The New Point in Diagnosis Between Appendicitis and Tubal Diseases," by Robert T. Morris, New York.

These two papers were discussed together. The discussion was opened by Dr. Baldwin, continued by Drs. Carstens, Rosenthal, Jonas, Goldspohn, Ferguson, and closed by Drs. Ill and Morris.

On motion, the Association at 1 o'clock took a recess until 2:30 P. M.

Afternoon Session, 2:30 o'clock.

The President in the Chair.

16. "Cesarean Section, Abdominal and Vaginal, Compared and Contrasted," by Miles F. Porter, Fort Wayne.

Discussed by Drs. Zinke, Carstens, Pantzer, Sanes, and in closing by the author.

17. "Drainage," by James F. Baldwin, Columbus.

Discussed by Drs. Goldspohn, Sellman, Carstens, and in closing by the author.

18. The President's Address,—"The Gilliam Operation for Retrodisplacement of the Uterus," by William Henry Humiston, Cleveland.

The President having expressed a desire to have his address discussed, the discussion was opened by Dr. Goldspohn, and continued by Drs. Longyear, Ferguson, Walker, and Carstens. The latter, at the request of the president who was obliged to be absent, closed the discussion for him.

19. "Is the Routine Exhibition of the Preoperative Purge Defensible? " by Edwin Walker, Evansville.

Discussed by Drs. Goldspohn, Longyear, Carstens, Ferguson, Wright, and in closing by the author.

Dr. John W. Keefe exhibited a roll of rubber tissue, such as dentists use, which he found of advantage in walling off the intestines from the gall-bladder in cases of gall-bladder surgery and in similar situations within the abdomen.

At this juncture, the President called for discussion on the paper of Dr. Frederick, which had been postponed from yesterday.

Dr. Pantzer suggested, in deference to Dr. Frederick, who was absent, that his paper should not be discussed, but that it should be referred to a committee of three, to be appointed by the president, for consideration and to report back to theAssociation next year. He made this as a motion, which was seconded by Drs. Walker and Zinke, and carried.

The President appointed as members of this committee Drs. Frederick, Pantzer, and Zinke.

On motion, the Association at 5:30 took a recess until Thursday morning, 9:30 o'clock.

THIRD DAY—*Thursday, September* 23, 1909.

Morning Session.—The Association met at 9:30 with the President in the Chair.

20. "Phlegmasia Dolens in Connection with Ovarian Tumor," by William A. B. Sellman, Baltimore.

Discussed by Drs. Dorsett, Goldspohn, Noble, Longyear, Zinke, Keefe, and in closing by the author.

21. "Terminal Events in Gallstone Disease," by Charles N. Smith, Toledo.

Discussed by Drs. Porter, Noble, and in closing by the author of the paper.

22. "Removal of Upper Portion of the Rectum and Sigmoid, with Report of a Case," by Thomas B. Noble, Indianapolis.

In connection with his paper, Dr. Noble exhibited an instrument which he had found useful in this and similar cases.

The paper was discussed by Drs. Smith, Brown, Kirchner, Keefe, Porter, and in closing by the essayist.

23. "Malignant Tumor of Undescended Testicle," by Orange G. Pfaff, Indianapolis.

Discussed by Drs. Keefe, Kirchner, and in closing by the essayist.

The secretary reported that in compliance with the instructions of the Association he had sent to Dr. Price the following telegram:

FORT WAYNE, Ind., Sept. 22, 1909.

DR. JOSEPH PRICE,
241 NORTH 18TH STREET,
PHILADELPHIA, PA.

The American Association of Obstetricians and Gynecologists by unanimous vote expresses its great regret that you are prevented by illness from attending its annual meeting, and tenders its sympathy; also expressed hopes for your speedy recovery.

WILLIAM WARREN POTTER, *Secretary.*

On behalf of the Executive Council, the Secretary presented the following resolutions of thanks:

Resolved, That the thanks of the Association be and are hereby tendered to Dr. Miles F. Porter, Chairman of the Committee of Arrangements, for the delightful preparations which he made for the conduct of the meeting; also for the arrangements made for the clinic this morning, which, without his kind cooperation, could not have been held; and, also, for his efficient services in conducting the banquet and bringing it to a success.

Resolved, That the thanks of the Association be and are hereby extended to the Physicians' Defense Company, of Fort Wayne, which presented us with the fine badge we are wearing and which we are delighted to preserve as a memento of this meeting. It is proper to state, in explanation, that the design was made by Dr. Porter, and the Physicians' Defense Company carried it out in an artistic manner, for all of which we feel very much indebted.

Resolved, That the thanks of the Association be extended to the newspapers of Fort Wayne, both morning and evening editions, all of which have taken much interest in our work and proceedings, and have given us excellent reports of the scientific work, general details, notices of members, and all else of interest.

Resolved, finally, that the thanks of the Association be extended to the management of the Hotel Anthony, and particularly to Mr. Keenan, for the personal interest he has taken in the entertainment of members and guests.

On motion of the Secretary, seconded by several Fellows, these resolutions were adopted.

On motion, the Association then adjourned without day.

WILLIAM WARREN POTTER, *Secretary*.

EXECUTIVE SESSIONS.

Tuesday, September 21, 1909.

The President, Dr. William H. Humiston, in the Chair.

On behalf of the Executive Council, the Secretary presented a list of applicants for Fellowship, after which the Association elected by ballot the following-named candidates: Gordon K. Dickinson, Jersey City, N. J.; Julius H. Jacobson, Toledo, O.; Maurice I. Rosenthal, Fort Wayne, Ind.; K. I. Sanes, Pittsburg, Pa.; Henry Albert Wade, Brooklyn, N. Y.; Ralph Waldo, New York, N. Y.; H. Wellington Yates, Detroit, Mich.

The Secretary stated that the Executive Council had instructed him to report to the Association that Dr. Thomas Jefferson Crofford, of Memphis, who had been a Fellow of the Association for a long time, recently resigned on account of ill health, and the Council therefore recommends that Dr. Crofford be transferred to the list of honorary Fellows. Accordingly, the Secretary moved, on behalf of the Council, that Dr. Crofford be elected to honorary Fellowship.

The motion was duly seconded and carried.

The Secretary said that the only other matters to come before the Executive Session at this time were the financial reports of the secretary and treasurer.

It was moved and seconded that these accounts be referred to an Auditing Committee to be appointed by the President. Carried.

The President appointed as Auditing Committee L. W. Swope, and Ernst Jonas.

After an announcement by Dr. Porter, Chairman of the Committee of Arrangements, relative to the annual dinner, and the badge, which he stated was presented to the Association by the Physicians' Defense Company of Fort Wayne, the Executive Session adjourned to meet at 5:30 P. M., Wednesday.

Wednesday, September 22, 1909.

The Executive Session was called to order by the President immediately after adjournment of the scientific session, (5:30 P.M.).

The first order was the election of officers, which resulted as follows.

President, Aaron B. Miller, Syracuse; *First Vice-president*. Charles N. Smith, Toledo; *Second Vice-president*, Raleigh R. Huggins, Pittsburg; *Secretary*, William Warren Potter, Buffalo, re-elected; *Treasurer*, Xavier O. Werder, Pittsburg, re-elected; *Councilors*, to fill expiring terms; William H. Humiston, Cleveland, and Hugo O. Pantzer, Indianapolis.

The Secretary stated that it was in order for the Association to fix the time and place of the next meeting. He had received invitations from Cedar Point, Atlantic City, Rochester, Niagara Falls. New York City, Toledo, Evansville, and Providence were also mentioned by some of the members.

After considerable discussion regarding the merits of the various places mentioned, their accessibility and other claims, which was participated in by Drs. Carstens, Longyear, Brown, Walker, Smith, Keefe, Sellman, Zinke, the President-elect Dr. Miller extended a cordial invitation to the Association to hold its next meeting at Syracuse. The invitation was accepted, the Association voting unanimously in favor of that city.

Considerable discussion was also elicited concerning the fixing of the date, but it was finally decided to hold the next meeting at the usual time, September 20, 21, and 22, 1910.

It was moved by Dr. Carstens, and seconded by Dr. Keefe, that the Secretary be instructed to send a circular letter to the Fellows, asking their opinion as to what they consider the best and most convenient time of year for holding the annual meeting; also that he be instructed to report the result at the next meeting.

The Auditing Committee reported having examined the accounts of the secretary and treasurer, and had found them correct, with a balance of $345.05 in the treasury.

On motion, the report was received and adopted.

The induction of officers being the next order, President Humiston appointed Drs. Dorsett and Smith to escort the President-elect to the platform.

The retiring President, Dr. Humiston, in introducing his successor, said: I am glad the mantle of this office has fallen on such an able man.

I came to Fort Wayne with some misgivings. It was a new departure for this Association to meet in a city of this size. I also knew some weeks before this meeting that a great many of our prominent members would be absent. I, in conjunction with Dr. Potter, worked diligently on the program, and I feel that if all the Fellows who had promised to read papers had come here, we would have had one of our greatest meetings. Nevertheless, as it has turned out, I am pleased with the results, and my heart is too full for utterance. I believe we have had a meeting that will rank in character of papers and discussions with any in the history of this Association. This has not been due in any way to your president, but the whole credit is due to the Fellows who have come forward and made this meeting the success it has been. For the honor you have conferred upon me, I shall always feel grateful. I thank you for your cordial support and aid through the entire session. I thank you for your continued presence and assistance in every way in making this meeting the great success it has been. (Applause.)

Dr. Miller, in accepting the presidency, said:

I feel very grateful for the distinguished honor you have conferred upon me, and I feel, too, in a way my inability to fill this very high office. My association with you has been from the beginning of this organization. When founded I was the youngest member taken into it, and while I have attended the meetings with a good deal of regularity, I assure you it has been a great pleasure to me to do so.

I have heard Dr. McMurtry say that the American Association of Obstetricians and Gynecologists gave him his inspiration, even his start in the surgical world. I have heard Dr. Murphy, of Chicago, in the earlier life of the Association say that it was one of the strongest organizations in existence, one from which he derived not only inspiration but great benefit. Other eminent members have spoken in a similar strain. It has been a source of gratification to me that I could be associated with the men who make up this organization, and I wish to thank you very heartily for this expression of your good-will. (Applause.)

I want to thank the Fellows of the Association, too, for selecting Syracuse as the next place of meeting. I know that our medical fraternity will be grateful and will greet you with all the kindness and courtesy possible. The meeting there will mean much to them. Syracuse is so located as to be accessible for all to reach it. It is on a great trunk line to New York, which makes it practically a suburb of the metropolis. You know something of the city. It had its inception from the finding of salt, so for a long time it was known as the City of Salt. It is now known as the Central City. However fresh our members may appear to others, we will be able to send them out thoroughly salted before they leave us. (Laughter.)

To the younger Fellows of the Association, I wish to say that some of them are suffering from diffidence, and as a result the Association is not getting the benefit of their work. I hope they will attend the next meeting with the feeling that due opportunity will be given to them for entering into the deliberations of the meeting.

We will have at the time of the meeting exceptional hotel advantages. Syracuse, perhaps, has been handicapped in this particular in the past. As I have already stated, it is located in the central part of the state, and should have been the capital, and while Albany is our capital, and Rochester is just west of us, Syracuse is the most lively and active city between New York City and Buffalo. This at all events is the reputation given it by business men and commercial travelers, who speak of the progress of our city. Aside from what I have told you of Syracuse, I must not omit to mention our Chancellor Day, who as you know, has achieved a national reputation. He is certainly a great man. It will be my purpose at this meeting, if possible, to present Chancellor Day to you at the banquet in order that you may not only see him, but hear from him.

Again, I thank you for the great favor you have conferred upon me. (Loud applause.)

As there was no other business to come before the meeting, the Executive Session then adjourned.

WILLIAM WARREN POTTER, *Secretary.*

PAPERS

READ AT THE

TWENTY-SECOND ANNUAL MEETING

OF THE

AMERICAN ASSOCIATION

OF

OBSTETRICIANS AND GYNECOLOGISTS

HELD AT THE

HOTEL ANTHONY, FORT WAYNE, INDIANA,

SEPTEMBER 21, 22, AND 23, 1909

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THE PRESIDENT'S ADDRESS.

THE TREATMENT OF RETRODISPLACEMENTS OF THE UTERUS.

WITH BRIEF REPORT OF ONE HUNDRED AND THREE GILLIAM OPERATIONS.

BY
WILLIAM H. HUMISTON, M. D.,
Cleveland.

I FULLY appreciate the high honor you bestowed upon me in electing me president for this year. Coming as it did during my enforced absence from the Baltimore meeting, I feel more fully than I have words to express the honor and compliment you have paid me, and I have given and shall continue to give, the office the time and care it so richly deserves. Pray accept my heartfelt thanks.

Probably not a person who is a member of this association has not well settled convictions as to the best method of treating uterine displacements, but there are many others who do attempt the treatment of these cases without affording relief, and in many cases by manipulative violence convert a simple condition into a complicated one.

Our proceedings are published and are read and digested by thousands who practise medicine and surgery, and it is my hope to so present a few thoughts on this subject that it will stimulate a comprehensive discussion, and be helpful to the general profession. This subject has received a great deal of attention from gynecologists for years, and a great many operations have been described and practised for the restoration of the retrodisplaced uterus. Many of the operations were found to be deficient and insecure after repeated trials. Others substituted an abnormal new position for the one found to be corrected, and if pregnancy occurred labor at or before term was complicated.

I have come to divide the cases of retrodisplaced uterus into two classes: a smaller one in which active major surgical meas-

ures are not required to obtain a cure, and a larger one in which active surgical procedures are necessary.

In the first group are all those cases of retroversion of not long standing and in which there has been no infection or inflammation of the appendages. Most cases of this group that I have seen have been those in which miscarriage or labor had recently occurred.

The prominent symptoms presented were backache, occipital headache, bearing down feeling while in upright position, frequent but not painful micturition, constipation, disturbed digestion, and an increasing nervousness. Menstruation was increased in amount and frequency but was not as a rule painful. Some leucorrhea was always present. Digestive disturbances were usually prominent.

Bimanual examination as a rule revealed injury to pelvic floor and perineum, cervix lacerated, swollen and in axis of vagina; cervix easily reached with finger, and a continuous resisting *body* from posterior wall of cervix as far as finger can reach, which is movable. Ovaries can be palpated and are movable and but little increased in size. Fundus of uterus absent in front.

Such cases as above described are ideal for the surgeon who resorts to the Alexander operation, and should be successful, providing he resorts to curettage, trachelorrhaphy and perineorrhaphy before shortening the round ligaments.

But I claim and have demonstrated it time and time again that these cases of retroversion without complication can be cured by curettage, trachelorrhaphy, replacement of uterus, well fitting pessary adjusted, and the pelvic floor and perineum repaired by a method that will insure a muscular restoration of the parts. I am not now describing a case of retroflexion when I make the claim of cures for the above procedures. A pessary can not hold a retroflexed uterus in normal position.

I use the pessary only as a temporary aid, keeping the uterus forward where manipulation has placed it until involution occurs and the structures outside of the uterus have regained their tonicity and function. The average length of time the pessary is required is twelve weeks, when it can be removed and the uterus will remain in normal position. In several cases pregnancy has occurred before the pessary was removed.

Unfortunately we have but few of the uncomplicated cases, as 90 per cent. are complicated when specialists see them, and in addition to above operations the abdominal cavity is opened

and the diseased conditions found dealt with. The appendix is quite frequently found diseased and is of course removed, and the operator's work ended by shortening the round ligaments by the Gilliam method.

The Gilliam method is comparatively simple and its results are enduring and satisfactory. The results I have attained in 103 cases in three years are highly satisfactory as I have had no deaths in the series, nor have there been complications at delivery in those that became pregnant. All were delivered without artificial aid excepting in one case where low forceps was used. No connection could be traced between the Gilliam operation and the procedure.

It is rare indeed that we do a Gilliam operation alone, for usually some complication will be found necessitating additional surgical procedures.

RESUME OF 103 CASES OF THE GILLIAM OPERATION.

Gilliam operation with resection of one ovary	15 cases.
Gilliam operation with resection of both ovaries	2 cases.
Gilliam operation with removal of one ovary	37 cases.
Gilliam operation with removal of both ovaries	19 cases.
Gilliam operation with removal of one ovary and resection of other	20 cases.
Gilliam operation and appendectomy alone	10 cases.
Total cases	103

The number of appendectomies performed in the series was 43.

Gilliam operation with appendectomy alone	10 cases.
Gilliam operation with appendectomy and resection of one ovary	5 cases.
Gilliam operation with appendectomy and resection of both ovaries	1 case.
Gilliam operation with appendectomy and removal of one ovary	12 cases.
Gilliam operation with appendectomy and removal of both ovaries	7 cases.
Gilliam operation with appendectomy and removal of one ovary and resection of other	8 cases
Total cases	43

The number of appendectomies is rather surprising but I removed none that had not the appearance on careful inspection of being diseased.

I desire to report in detail three cases of retrodisplacement of the uterus. These three cases are of interest as they present a wide range of symptoms and suffering.

CASE I.—Retroversion attended with melancholia, and a determination to destroy life.

Mrs. S., aged twenty-seven, married two years; one child at term, living. Normal delivery June 8, 1908.

Menstrual history—began at the age of fourteen; regular twenty-eight day type. No pain, quantity free, duration six days. Last period January 1, 1909, seven months after birth of child; attended with much pain and marked nervous depression, sleeplessness. General appearance anemic, weight ninety-seven pounds. Headaches severe; sleep poor, disturbed; appetite impaired; digestion weak; bowels constipated; urination frequent but not painful. Complains of occipital headache, severe pain between scapulæ and in right lower quadrant of abdomen. Bearing down feeling when on feet and increase of pain in head and back. Has no desire to live and mentally is in a state of hopelessness.

History of development of present condition: nervous and irritable during the last months of pregnancy, but since delivery has been much worse. Pain in right iliac region was first noticed when she got up after the puerperium and is constantly increasing in severity. The general previous history is good; had pneumonia when a child. Family history negative.

Examination shows heart and lungs normal, urinary examination negative. Abdomen normal except as to pain on pressure over lower quadrants. On inspection the vaginal outlet and perineum found were torn; a good sized rectocele existed. Bimanual examination revealed a roomy vagina, cervix in axis of vagina bilaterally lacerated with eversion and erosion. Uterus large and retroverted, tender on pressure, but movable. Right ovary prolapsed, somewhat enlarged, painful but movable. Left ovary palpable, normal in size.

Patient entered hospital January 18, 1909, and was prepared for operation January 20. Ether anesthesia, uterus curetted, cavity four and a half inches, double trachelorrhaphy performed, uterus placed well forward and a Smith pessary adjusted. Perineorrhaphy was then made, sphincter ani dilated and adhesions of clitoris freed. Patient put to bed in good condition. Convalescence normal. Microscopical examination of uterine scrapings revealed an interstitial endometritis.

February 7, 1909, the patient left the bed; condition greatly improved, nervousness and depression disappeared, appetite good and gaining strength. Sleeping quite well. Began to

enquire for her baby and was anxious to go home. Former condition of almost constant depression and lack of hopefulness replaced by a much more cheery disposition. Was dismissed from hospital on February 9 and returned home.

The patient had been home but a short time when her baby became ill and after a fortnight died. The care of the baby and the grief at its death produced a shock which temporarily checked her improvement. She was sent to her mother's home in the country and remained there several months, returning to Cleveland in August feeling well and had regained normal weight. I examined her September 15 (she had removed the pessary in July) and found the pelvic organs in normal position and condition. Her appearance was healthy; was cheerful in disposition and free from pain. Is now helping her young husband, a bank clerk, to pay the indebtedness of her long illness by teaching music. I feel I am justified in claiming a cure for this case through the minor operations and the pessary.

CASE II.—August 8, 1907, Mrs. P., aged twenty-seven years, married, one child at term, living and four years of age; one at seventh month, lived two days, two years ago. One miscarriage at five months in June, 1907. Referred to me by Dr. Barricelli. General appearance anemic, weight 100 pounds. Headaches, sleeps poorly, appetite poor, digestion disturbed, bowels constipated, urination frequent, leucorrhea present. Complains of constant pain and a swelling in right lower quadrant in region of old appendectomy scar. History of development of present condition: was operated for an appendicial abscess by a general surgeon three years ago after forty days' sickness at home, during which time she had high fever and pain in right side. The previous history good, and the family history negative.

When she entered the hospital she had fever, quickened pulse rate, and was suffering pain in the region of the scar in right inguinal region. On examination it was evident an abscess was about to discharge at this point. A tear of the vaginal outlet and perineum was found, cervix slightly lacerated; uterus in axis of vagina, a large mass in culdesac and right vaginal vault, high up, elastic and painful; left vaginal vault free. The next day, August 9, the abscess opened through the scar and discharged a thick creamy pus, without fecal odor.

On August 10 I enlarged this opening and put in a tube and gauze drain. Large quantities of pus came away and con-

tinued for days. Patient improved and I let her go home to return later for a radical operation. The abscess was kept open with gauze drain. Returned to hospital October 16, 1907. General appearance better, no fever, but fistulous tract open and discharging a small quantity of creamy pus. She was prepared for operation October 17, ether anesthesia, uterus curetted, cavity three and a half inches long.

The abdomen was opened, extensive adhesions of omentum separated and a large portion ligated and removed. This uncovered a large mass to right and above uterus. Extensive adhesions of intestines were separated and the mass was found to be a large tubo-ovarian abscess, with the distal end of appendix attached thereto. With considerable difficulty the mass was freed and rolled out and was removed with a V-shaped portion of right uterine wall cut out. Appendix removed, and the V-shaped cut in uterine tissue united with catgut. Left tube congested, otherwise normal; left ovary cystic, punctured. The uterus was firmly adherent to rectum, and when separated left the gut denuded of peritoneum. The uterus was brought well forward and retained by the gauze drain used.

A Mickulicz gauze drain was placed so as to protect the denuded surface and keep the uterus forward, and the incision closed down to the drain. Submammary injection of normal saline solution was given during operation and about two litres were used. The patient was put to bed in fair condition, without shock. One week later, October 24, fecal matter freely discharging through opening, the gauze was removed and a less quantity substituted. Patient's condition good. November 30, the abdominal opening was entirely closed and patient was dismissed. May 18, 1908, the patient returned, looking well, suffering no pain of any kind, and reported a gain in weight of thirty-five pounds; was menstruating regularly.

October 18, 1908, patient returned complaining of pain in left lower quadrant of abdomen. Cessation of menses since July 21, nearly three months. Examination revealed the cervix in axis of pelvis, softened, uterus enlarged in size to correspond to a three months' pregnancy. December 21, 1908, patient again presented herself, complaining of pain along site of old incision. She looked well and said she felt fetal motion. February 2, 1909, Dr. Barricelli reported patient surely pregnant and feeling well.

May 10, 1909, Dr. Barricelli reported that patient gave birth

to a male child weighing twelve pounds on May 7. Labor began at 5 P. M., was normal with delivery at 11 P. M. Placenta was expelled and firm uterine contraction maintained. May 13, the baby was thriving at the breast, and the mother was having a normal convalescence.

September 18, 1909, I went with Dr Barricelli to visit and examine this patient. Found her looking and feeling well. Able to do all her household work and nursing a healthy looking baby four months old. The patient weighed 160 pounds and was robust and entirely free from her former serious diseased condition. Pelvic examination revealed a slight tear of perineum, vagina normal, cervix small, in axis of pelvis, slight unilateral tear. Vaginal vaults free. The uterus was in normal position, normal in size and mobility not impaired. A small ventral hernia produced by the gauze drain was giving no symptoms or discomfort to the patient.

CASE III.—Complete prolapse of uterus. Mrs. W——, aged twenty-five, married five years, two children both living, no miscarriage. Menses began at seventeen, regular twenty-eight day type, duration four to five days, normal amount, pain during flow located in lower abdomen and in small of back. The patient came to hospital November 1, 1907, complaining of dull constant pain in lower abdomen and backache. Dragging sensation marked, the uterus coming down when on her feet and causing difficulty in walking. Patient gave birth to child in March, 1907, and was badly lacerated. Present trouble began three months ago when uterus began to appear in vagina, was replaceable, and has now complete prolapse.

Operation was done November 4, 1907. The uterus was curetted and cervix repaired; anterior colporrhaphy and perineorrhaphy. Abdomen was opened in median line and Gilliam operation performed. Patient was put to bed in good condition. She developed a lobar pneumonia the second day and it ran a severe course for two weeks, but she finally recovered and was dismissed from hospital December 6, 1907. December 8, 1908, patient presented herself at dispensary and was seen by Dr. Bolt. She was apparently two months pregnant and in good condition.

July 19, 1909, patient was delivered of a seven and a half pound girl baby by Dr. Bolt. Persistent occiput posterior, delayed completion of second stage of labor and the head was rotated with forceps and extracted. Laceration of perineum was immediately repaired and recovery was uneventful.

September 17, 1909, I saw the patient with Dr. Bolt. Her general condition was excellent and she was nursing a strong healthy baby. However, she was out of bed too early following confinement, and with her arduous duties began to have prolapse of uterus which she neglected for several weeks. Dr. Bolt was then called and replaced the uterus and fitted a pessary which holds the organ in position. The perineum is faulty, with no muscular support to pelvic floor; quite a large rectocele exists; uterus is small, freely movable and appendages normal.

The pelvic measurements made on above date are:

Intercristal	26 cm.
Interspinous	22 1/2 cm.
External conjugate	19 cm.
Left oblique	21 cm.
Right oblique	21 1/2 cm.
Internal conjugate	10 1/2 cm.
Interischial tuberosities	7 3/4 cm.

This indicates a general narrowing of the whole pelvis. It is also the first Gilliam failure I have noted following labor. The cure was complete and remained so until labor took place.

DISCUSSION ON THE PRESIDENT'S ADDRESS.

DR. ALBERT GOLDSPOHN, Chicago.—You will excuse me for speaking again, but I cannot refrain from doing so when the subject of retroversion of the uterus is under discussion. I am glad that it is not ignored in this meeting. I am glad that some one who does not advocate the Alexander operation or bi-inguinal laparotomy for retroversion, but advocates some other procedure, is following the tactics of some twenty of us Alexander men, who were driven by the pressure of the general profession, opposed to the Alexander operation, to look up our patients years after the operations, getting at them by paying their car fare, or by hiring men to go who knew how to examine these women. And the Alexander men, as a whole, got hold of more than 25 per cent. of their cases. I got hold of as high as 75 per cent. of my cases. That is a respectable way to show facts. To say simply that a woman afterward gave birth to a child without difficulty and then dismiss the case without any continued responsibility as to the normal position of her organs permanently, is reprehensible. To depend simply on the patient's statement as to how she feels is likewise inadequate for scientific purposes.

We need to get at these cases two or three or four years after the operation has been done, after they have borne children, and examine them. The anatomical results on examination may be found to be ideal, or they may be an utter failure. The

trouble with most of the operators, always excepting the Alexander men, has been that they have not followed their cases beyond the point when they were next confined. I have repeatedly challenged the gentlemen of the Baltimore school, who were the fathers in America of ventrosuspension, to follow up their cases and report them after they had been confined and see what was the position of the organs then. These gentlemen have taken these challenges in a wonderfully meek manner. They are able men who do things scientifically and I have cause to believe that they do follow their cases, but the results were such that they had better not be published. An instance of what these results were appeared when an assistant of a Baltimore clinic, located in Chicago, presented his gynecological thesis to become a member of the Chicago Gynecological Society, and in that thesis he reported some thirty odd cases of Cesarean section necessitated by that wild-oats surgery. This former assistant reported these disasters not many years after his experience there with great men.

I created enmity in saying what I did about ventrosuspension of the uterus, but the results have proven the correctness of my position. Dr. Humiston made a statement which is the opposite of my observation—namely, that a pessary in many cases of retroversion will cure the displacement after the perineum has been restored and the cervix repaired, even if a pessary be in place only twelve weeks. I think if the president will examine these cases one year after that operation or one year from the time he has removed the pessary, he will find quite a large percentage of the recurrence of displacements. From observation of a large clientèle of retroversion cases seen at my consulting office, and treated by pessary year in and year out, I have come to the conclusion that the pessary treatment will cure retroversion only when begun during the period of involution of the uterus after a childbirth, and carefully continued for about a year.

If the retroverted uterus is in a puerperal condition, in which involution is not yet completed six weeks after confinement, there will be a big heavy mass lying in retroversion. If one succeeds in holding this heavy mass in the proper position, giving slack to the round ligaments, he will by this act reestablish involution in the uterus and in the round ligaments, because they are given slack and are a part of the uterus. If this is persisted in for a year and the pessary removed at the end of that time, the case will usually be cured. Ordinarily, in later gynecological cases, the pessary is simply a makeshift and of temporary usefulness only, and the cures of ordinary cases by it are something like 1 or 2 per cent. Here is a potent time for the general practitioner or the accoucheur to look out that the gynecologist does not get so many cases to cure by surgery. A heavy uterus should be returned to its proper position and held there by a pessary assisted by the knee-chest posture fre-

quently assumed, looking out that the round ligaments are given permanent slack. Then involution will be reestablished; and with it the round ligaments will undergo the same retraction because they are a part of the uterine muscle.

DR. H. W. LONGYEAR, Detroit.—I think the case reported by the president as having been cured by a pessary was simply one in which there was subinvolution. The uterus was large, and the round ligaments were in the same condition, and as involution went on, largely the result of operative work, the uterus was held in normal position by its own support. I do not think a uterus that has been retrodisplaced or retroflexed in the third degree before pregnancy ever gets well after pregnancy has occurred, without operation.

DR. ALEXANDER HUGH FERGUSON, Chicago.—The title of the president's address is rather misleading. I think we ought to avoid as much as possible the names of individuals connected with the technic of any operation and speak of the procedure itself. For instance, for the Alexander operation we should say the inguinal operation on the round ligaments. When the uterus is brought forward and kept in place by the round ligaments being taken up through and about the recti muscles, the proper name should be anterior transplantation of the round ligaments for the support and suspension of the uterus. The practice emanated first of all from Carl Beck, of New York, in about 1886. He removed both tubes in a certain case and found there was a displaced uterus. He swung the uterus forward by the root of the right round ligament, suturing it in the median incision. He had no idea of instituting a procedure for the displacement of the uterus backward.

The next step in that connection was made by myself, and at the Denver meeting of the American Medical Association I called the operation anterior transplantation of the round ligaments for displacement of the uterus. If my memory serves me correctly, the next man to make improvements in the technic was Simpson, of Pittsburg. He brought the round ligaments extraperitoneally through the recti without cutting them, and fastened them a little differently from my plan. The next surgeon was Noble, of Alanta, Ga., and then Gilliam, of Columbus, Ohio, who, as you see, comes in far later than the pioneers in this work of anterior transplantation of the round ligaments. The so-called Gilliam operation is a modification of anterior transplantation of the round ligaments and that is all he himself claimed for it.

I have seen a number of women who have borne children after this operation. A fair number of them come back to the hospital to be confined. I make the request of these practitioners to notice whether or not there is any retardation to normal labor. As a rule, I believe that labor is retarded by any operation done to keep the uterus in place, whether by the inguinal route or by anterior transplantation of the round ligaments or otherwise.

In the last case I attended in consultation there was a great retardation of labor. She and the doctor in attendance thought it was due to the operation. We found a brow presentation. If you will allow me to deviate a little, I will say that I applied the forceps in this case of brow presentation under chloroform, and the patient was put on her left side in the Trendelenburg position. Instead of pulling upon the forceps, I pushed the head upward in the opposite direction and turned it to the occiput, removed the forceps, put them on again, lowered the patient to a horizontal position and then delivered in the ordinary way.

DR. EDWIN WALKER, Evansville.—I want to say a word or two with reference to this subject, if I may be permitted. It seems to me so many methods have been advised for retrodisplacement of the uterus that it shows the present methods are not entirely satisfactory. There is one thing in particular I have noticed after any of these operations—and I have done every one that has been described, including the ventrofixation and ventrosuspension, I am sorry to say—and that is, I find the cervix hangs down too much, and these patients are frequently not relieved of their symptoms; hence I believe these operations will be discarded, as they do not fulfil the indications. Of course, I do not know what the final solution is going to be. Some operators are now utilizing the round ligaments behind the uterus, but I do not know whether that will work or not. I have tried to shorten the sacroiliac ligaments, but the results have not been satisfactory. I have done a number of these operations and some of the patients have been comfortable afterward. Several have been delivered afterward. I did one Cesarean section in a case in which a ventrosuspension had been done, not by myself, but by some other practitioner. But the fact of the matter is that when we try all of these different methods of operating for the relief of this condition, we are not quite satisfied, and I hope some plan will be devised that will solve the problem.

DR. CARSTENS (closing the discussion for Dr. Humiston by request of the president who was called out).—I look at this matter in this way: there are all kinds of cases and there are all sorts of conditions in women, and hence all of these different operations have been devised to fill the indications in some particular case. In one case one operation will answer a useful purpose, while in another case another operation seems to be more suitable. In some cases I do an anterior Dührssen or Mackenrodt operation through the vagina, but I only do one or two such operations in a year, and I do perhaps one or two Gilliam operations in a year. And the same may be said with reference to genuine ventrofixation. When I have an old woman to deal with, one who has passed the menopause, sometimes in such cases I do a vaginal hysterectomy. But usually it is a question of natural selection, the survival of the fittest, and adaptation to environments.

ADVANTAGE OF THE COMBINED INTRA- AND EXTRA-PERITONEAL URETEROLITHOTOMY FOR THE REMOVAL OF STONES FROM THE LOWER URETER.

BY

ERNST JONAS, M. D.,

St. Louis.

(With one illustration.)

UNTIL a few years ago and perhaps up to the very present, without doubt not a few appendices have been removed for so-called chronic appendicitis. Vague gastric disturbances and a moderate degree of local tenderness around McBurney's point, were considered sufficient to warrant the diagnosis of chronic appendicitis and justify the consequent removal of the appendix. No wonder then that the diagnosis frequently proved erroneous. It was a time, when we were inclined to accuse the appendix as the cause of all kinds of abdominal troubles. Now, the pendulum of opinion swings in the opposite direction and, in those cases in which no distinct spell of acute appendicitis has been observed, the conscientious surgeon is inclined to regard the appendix as not guilty until he can definitely prove it to be the cause of the trouble. Justly, in these cases (without a positive acute attack of appendicitis), we demand a most painstaking physical examination before returning the verdict chronic appendicitis and recommending removal of the appendix. Again, justly in these cases, we demand repeated thorough examinations of the urine (the catheterized specimen in women) in order not to overlook traces of blood, red-blood corpuscles, the presence of which points strongly to the diagnosis of stone in the kidney or ureter.

Especially some time after the patient has experienced pain or after firm palpation of the tender spot, the urine is likely to show traces of blood which may have been absent during the spell itself. With evidences of blood, macroscopical or microscopical, in the urine the next step is an *x*-ray examination to be followed by cystoscopic examination and catheterization of the ureters. A skiagram of the kidney and ureter, to be of prac-

tical value, must show a shadow of structures less dense than the least dense calculi, phosphatic and uric acid.

A good *x*-ray picture must show distinctly the processus transversi of the vertebral column and the structure of the last rib and crest of the os ileum; it should also show the oblique course of the psoas muscle and perhaps the quadratus lumborum. If plates of such character do not show any shadow in the region of the kidney and ureter, it is fairly safe to exclude a stone in the kidney or ureter. To skiagraph the kidney and the whole length of the ureter demands, as a rule, four good pictures from each side, and both sides should always be skiagraphed, if there is any suspicion of kidney or ureter stone. An *x*-ray shadow in the region of the ureter is, however, by no means a proof of a stone in the ureter. A phlebolith close to the course of the ureter (as observed by me in a case of cancer of the bladder) or a fecal concretion in the tip of the appendix may easily be mistaken for ureter stone. It is therefore safest not to rely on any one method, but to combine with the *x*-ray examination the cystoscopic examination and catheterization of the ureter.

An *x*-ray picture taken with the ureter catheter containing a wire stilet or filled with mercury makes the diagnosis an accurate one. I have no experience with wax-tipped ureter catheters. Having positive evidence of a ureter stone, we have still to prove that there is only one. Again we have to resort to the *x*-ray and it alone can aid us in deciding this point. A ureter stone being present, we should not allow more than two days to elapse before operation. If an operation cannot be performed within that time, another picture should be taken. This is a precaution against disagreeable surprises. Stereoscopic radiographs, taken after very thorough evacuation of the bowels, may give a fairly good idea of the relation of the stone to surrounding bony structures (Gibbons). Occasionally it happens that ureter stones not firmly incarcerated change their places, so that some days they are down low and can be palpated, while other days they are higher up and cannot be felt. This fact emphasizes the value of repeated examinations from the rectum or vagina.

Positive evidence of the ureter stone is at the present time almost generally considered, at least by the surgeons, cause for prompt surgical action. Although, as Deaver says, a calculus may remain lodged in the ureter indefinitely without producing serious symptoms, yet such cases are exceptional, and were such a calculus to be discovered by chance, it is questionable whether

it would not be the surgeon's duty to remove it as a prophylactic measure. It can, I think, hardly be questioned, that the well known dangers which may ensue from neglect of ureteral calculus are much greater than those which attend its removal by operation. Even the remote possibility of development of cancer at the point of impaction is to be considered. The only exception for surgical interference is the class of cases, in which with

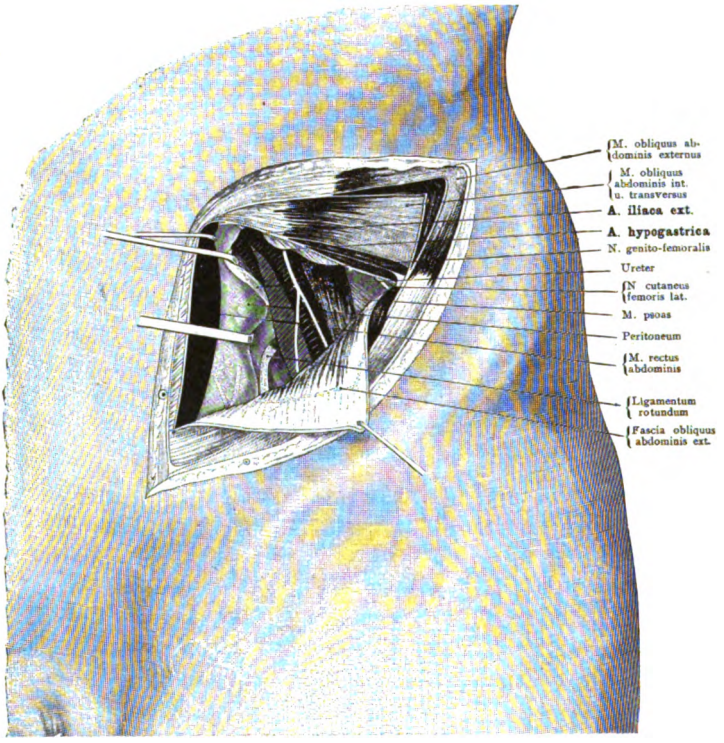

FIG. 1.—Surgical relations of the ureter.

each attack of kidney colic, a larger or smaller calculus is discharged. *X*-ray pictures between the attacks may, of course, be entirely negative. It is evident that in cases of this kind, the salvation of the patient lies in the proper hygienic and dietetic treatment combined with urinary antiseptics, a treatment which should always be adopted after operations on kidney or ureter.

The operative method for the removal of a stone from the ureter is less agreed upon, if, as is my object in this paper, we

consider, in particular, stones lodged in the ureter during its course through the pelvis, that is, the lower ureter.

There are three locations in the ureter where a stone is liable to be arrested:

1. An inch and a half to two inches from the pelvis of the kidney as the ureter bends forward over the psoas muscle.

2. In the bend of the ureter about 1 to 2 inches below the pelvic brim. Deaver says, at the brim of the pelvis, where it dips down across the bifurcation of the common iliac artery.

3. In the vesical portion (just before the ureter passes into, or during its course through, the vesical wall—Morris).

The usual operative route for stones in the vesical portion (3) is intravesically, if the stone is lodged very close to the vesical orifice of the ureter. Where the stone is situated an inch or more from the bladder wall this method is not safe and the combined intra- and extraperitoneal method is to be recommended. Ureter stones lodged near the pelvis of the kidney (1) are best removed extraperitoneally through incisions as used for exploring the kidney. It is fairly a matter of choice, whether the stone be removed by incision through the kidney substance or directly through the pelvis of the kidney or by incising the ureter itself. The danger of urinary fistula from incision into the ureter is extremely slight, if the passage to the bladder is free. If drainage is desired, ureterotomy is not advisable. Direct drainage of the pelvis of the kidney is of course preferable, just as, in a case of stone in the cystic duct, we prefer to drain the gall-bladder by incising the gall-bladder itself and do not, unless unavoidable, drain through the cystic duct. And, since we believe that most ureter stones originate in the kidney pelvis, the pelvis of the kidney should be drained in almost all cases, even though conditions for natural drainage may be favorable.

The best operative method for stones in the lower ureter, that is from the point where the ureter crosses the common iliac artery to the vesical portion, is still under discussion. I believe with most surgeons that ureteral stones are mostly secondary. Primary stones, rare as they may be, must be due to a local cause, irritation, foreign body, kinking of the ureter, by adhesions, and the like. However, we possibly underestimate the frequency of primary ureter stones, since in the vast majority of cases only one stone has been found. If the kidney is the originator of the stones, why do we find so frequently only one?

Formerly we believed that ureter stones near the pelvis of the kidney and near the vesical orifice, were much more frequent than those in the lower ureter. With the aid of the *x*-ray, we have found that this is not true. They number perhaps 50 per cent. or more of all ureteral stones and had simply not been diagnosticated.

The operation must aim 1. to remove the stone or stones in order to avoid the well known dangerous consequences to the kidney, and 2. to prevent the recurrence of the stone.

If our sole object were to remove a stone from the ureter during its course through the pelvis, the following extraperitoneal method would suffice: a straight incision parallel to the external border of the rectus muscle extending from the semilunar fold of Douglas to the pubis. The peritoneum is not opened but pushed toward the middle line and, with it, as a rule, the ureter appearing as a whitish or yellowish whitish tape. It is surprisingly simple to expose the ureter in this manner from the brim of the pelvis to the bladder, about four inches in extent. Instead of making an incision in the linea Spigelii, it may of course also be made a little further inward. In that case, it exposes and splits the anterior sheath of the rectus muscle, the muscle itself being either cut or pushed aside. In view of the necessary drainage, this incision is, in my opinion, preferable to the low gridiron operation, since it interferes less with the muscular support of the abdominal wall. The removal of the stone is then usually an easy matter.

However, as stated, this method takes into consideration only the removal of the stone, and leaves entirely out of question the second point—the prevention of a recurrence of stone formation. It seems evident to me that the mere removal of a stone from the lower ureter does not in any way guarantee the complete cure of the patient and here, as always, it must be our endeavor to remove not only the effect but the cause (*cessante causa, cessat effectus*).

Morris attributes lodgment of a ureter stone in the bend of the ureter to the curve made by the ureter. The ureter stone near the pelvis of the kidney is also usually found where the ureter bends forward over the psoas muscle. Again, the lodgment of a stone may be due to narrowing or constriction of the ureter, the normal size at the three points from where ureter stones are usually found being 1/7, 1/4 and 1/10 of an inch respectively. I fully agree that the origin of the majority of ureter stones is in

the kidney and that they are merely arrested in the part of the ureter now under consideration. Some stones, however, are probably formed there. In the former instance, we have to explain the lodging of the stone in this particular place, in the latter, the origin and lodging at this particular place,—the widest of all three places just mentioned.

There is to my mind nothing more likely than that, in men, an inflammatory condition of the appendix, in women, a like condition or adhesions around tubes and ovaries or in connection with retroflexion of the uterus, might cause ureteritis or periureteritis, or produce a kink in the ureter, or at least increase the normal bend of the ureter at this point. In this way, small stones coming down from the kidney may be retained and increased in size *in loco* and, in this way, a ureter stone may begin to form about a small nucleus of mucus.

I therefore advocate an operation that permits the examination of these organs and the necessary steps for their reparation or removal. Such an examination can be satisfactorily made only after opening the peritoneal cavity, and, in my opinion, it should be made in all cases, especially, however, if the stone is on the right side, for then only can it be ascertained whether the appendix is diseased and whether adhesions around it are not indirectly to blame for the ureter stone. Before employing this technic, I had two cases in each of which I had to remove the appendix after having previously removed a ureter stone. The intraperitoneal beginning of the operation is of advantage not only for the above reason, but because in a great many cases the finding of the stone is made more easy. After locating the stone, the peritoneum, if infection be feared, may be closed at once but had better be kept open, as advised by Gibbons, to facilitate the removal of the stone with the aid of the finger in the peritoneal cavity. The finger is placed against the stone, the peritoneum pushed off from the abdominal wall and the stone removed extraperitoneally. The peritoneum is then closed and the rest of the incision sutured in the usual manner down to the lowest point, through which a drain, not unprotected gauze, is passed to (not into) the small opening in the ureter. A nick in the ureter wall is sufficient to permit the extraction of a good sized stone. It is advisable to push the stone up a little way from its lodging place so that the small cut does not strike the inflamed or ulcerated part of the ureter wall. I have never tried and do not expect to try, certainly not in men, to push the stone into the bladder,

since the opening in the ureter heals very quickly. Frequently hardly any urine is discharged through the drain. It is certainly not advisable to attempt to suture the ureter, which necessitates lifting it from its bed and risking necrosis of its wall. Besides, it is entirely superfluous, since the small incision in the ureter heals as a rule very rapidly, usually in less than two weeks and the drain opening a few days later. Occasionally the stone in the ureter is only felt and the ureter not distinctly seen. That sewing in such a case is not possible is evident.

The proper treatment, then, for stone in the lower ureter is, in my opinion, a laparotomy which allows a thorough examination into possible causes for the lodging of the stone or for the origin of the stone *in situ;* removal of the cause, if found, intraperitoneally and then removal of the stone from the ureter extraperitoneally by pushing away the peritoneum as above described. That this method should of course be employed if the diagnosis is doubtful needs hardly to be mentioned and that a definite diagnosis cannot always be made needs not to be discussed. In spite of most painstaking examination some cases remain doubtful. That, furthermore, the combination of appendicitis and ureter stones is not rare is proved by cases reported in literature, Gibbons, Deaver and others, beside the two cases of mine before mentioned and two more cases in which I employed this method and removed a badly diseased appendix and ureter stone. In all these cases, the ureter stone was located about one and one-half to two inches from the pelvic brim. Positive evidence of a ureter stone, therefore, instead of causing us to exclude other diseased conditions in this locality, should make us suspicious of them. The only operation which answers all demands is the combined intra- and extraperitoneal ureterolithotomy.

To summarize: the proper treatment for stone in the lower ureter is the combined intra- and extraperitoneal ureterolithotomy. The intraperitoneal part of the operation serves for exploration and for the removal of conditions which are possible etiological factors in the lodging and formation of stone. It also frequently makes the finding of the stone easier. The extraperitoneal steps serve for the removal of the stone.

Stones higher up, at the crossing of the ureter and the iliac vessels can be removed by this combined route, as described and first emphasized by Gibbons. Should it be difficult to push the peritoneum back far enough, it might become necessary to add McBurney's gridiron incision. In this way, a flap

is formed which gives complete access to the whole ureter from its point of crossing with the iliac vessels to the bladder. The shape of the entire incision is analogous to the cut described by Fowler for the extraperitoneal removal of ureter stones in the lower ureter and now frequently advocated for the ligation of the common iliac artery.

DISCUSSION.

DR. JOHN YOUNG BROWN, St. Louis.—This is certainly a most interesting subject. In my own work and in watching the work of others I have frequently been impressed with the fact that the appendix is often removed when macroscopically there seems to be no indication that it was at fault. The anatomical relationships of the appendix and ureter are interesting. During the last year I have been studying this by cross-section work and by injecting the appendix in the cadaver with bismuth, doing skiagraph work in all cases sent to my clinic with a diagnosis of appendicitis in which the diagnosis was at all doubtful, and I have been surprised at the number of cases in which stone in the ureter was found. I do not know of any condition that is more difficult to differentiate than certain forms of chronic appendicitis from stones in the ureter.

In the last year I have had nine cases, three of them being in physicians in whom the differential diagnosis was exceedingly difficult. My associate, Dr. Engelbach, at the St. John's Hospital, had some two years ago an attack which was supposed to be, and which was diagnosticated at the time as mild appendicitis. Examination of the urine showed a considerable amount of blood. A skiagraph was taken and we found what we supposed to be a stone in the ureter. Dr. Engelbach congratulated himself that he had a stone in the ureter rather than appendicitis. His attacks subsided quickly and he went along with reasonable comfort for some months when he had another attack, which was a little more severe. There was no leukocytosis, but the urine still showed blood and additional skiagraph examination showed what was supposed to be a stone in the ureter. He went to a meeting of the State Medical Society, and while there had a fulminating attack of what we considered appendicitis and what afterward proved to be appendicitis. He still had more or less blood in his urine. He refused to be operated on, believing that he had a stone in the ureter. I refused to have anything further to do with the case unless permitted to operate. The ureters were catheterized and a skiagraph taken with catheter in the ureter, and the shadow which was supposed to be a stone in the ureter proved to be a concretion in the appendix. I operated on him, removed the appendix which was retrocecal, and the symptoms pointing to stone in the ureter and blood in the urine were brought about by the contiguous condition of the ureter to the appendix.

I had another case, a doctor's brother and a doctor's son, who was sent to me with a diagnosis of appendicitis. I examined him very carefully and found blood in his urine. A skiagraph was taken and we found a shadow which seemed to indicate a stone in the ureter. I did the combined operation and not only removed a stone from his ureter, but found the appendix adherent to the right ureter, and I am inclined to believe, as was mentioned by the essayist, that probably the condition around the appendix had a good deal to do with the development of stone in the ureter. If I had removed the stone from the ureter and had failed to open his abdomen and to have removed his appendix I would not have given him the relief that he got from this combined operation.

An important point in Dr. Jonas's paper is that we should make a careful analytical diagnosis in all cases of so-called chronic appendicitis. It has impressed me forcibly that many, many appendices are removed where the trouble is absolutely not in the appendix, and I do not think, in justice to our profession and in justice to our patients, we have any right to open anyone's abdomen for the removal of the appendix until we have made a careful differential diagnosis, that diagnosis including not only a careful analysis of the urine but, if the urine shows any evidence of blood, a cystoscopic examination with ureter catheterization should be made and a skiagraph taken, and then the work controlled by a catheter in the ureter.

I am preparing a paper now to which I am devoting a great deal of time based on the cases we have had in the last two years. These cases have been carefully worked up, and in addition to that we are doing some skiagraphic work on the cadaver with the catheter in the ureter, and with the appendix and cecum injected and, in addition to that, we are doing some cross-section work which I think will prove of a good deal of interest.

As I said at the outset, this subject is a very important one; it is not one that has been discussed as fully as it should have been, and I trust the paper of Dr. Jonas will meet with a very full and free discussion.

DR. ALEXANDER HUGH FERGUSON, Chicago.—I am pleased to have heard this able paper by Dr. Jonas, and it comes at a very opportune time, inasmuch as the surgery of the lower ureters is comparatively recent.

The first operative case of stones in the ureter I encountered was one where the kidney had been completely destroyed by the stones, and they filled the ureter from the kidney to the bladder. (Plate 1). I removed the remains of that kidney and the entire ureter in 1895. I preserved the specimen. There was a stone at the neck of the bladder of such a size that it could not pass through, except by ulceration. The immediate result of the removal of this kidney and of the entire ureter was excellent, although before I did it I had to open the opposite kidney for a pyonephrosis. I did the operation under gas anesthesia.

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AND
DISEASES OF WOMEN AND CHILDREN
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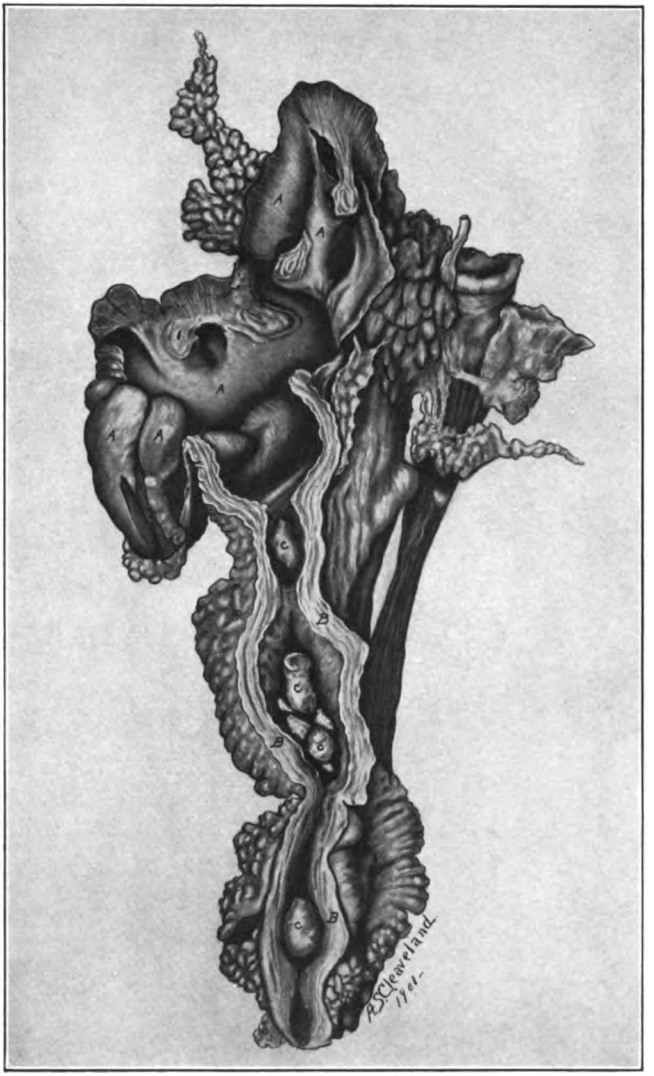
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I have had six cases of ureter stone. Besides these I saw a case in which there was a typical colic. The *x*-ray, as we thought, showed stones in both ureters, but I was not able to find any stones. It was one of the mistakes of the *x*-ray and also of the surgeon. The patient got well and has not complained of any colic since and that was four years ago.

DR. PORTER.—Was there any blood in the urine?

DR. FERGUSON.—Yes, I really thought it was a case of a rare form of nephritis. On September 15, 1909, Mr. C. A., of Winnipeg, presented himself at the Chicago Hospital with the following history: four years ago he had a very severe attack of nephritic colic in the left kidney. The radiograph showed kidney stone. He was laid up for two weeks, and since then has had several minor attacks, referred to the region of the ureter. The patient is otherwise a healthy man, fifty-eight years of age. The radiograph showed a stone in the lower end of the left ureter. The sound and cystoscope revealed nothing in the nature of a calculus in the bladder. The left ureteral orifice protruded somewhat, and was a trifle redder than normal. Besides the usual preparation for laparotomy, the patient was given urotropin and methylene blue. The anesthetic (ether) was given by the drop method.

A skin incision was made directly over the external ring, extending upward along the course of the inguinal canal for about 5 inches. The aponeurosis of the external oblique muscle was opened freely, exposing the entire inguinal region and internal oblique muscle. The internal abdominal ring was enlarged, without opening the peritoneal cavity. The transversalis fascia was severed the entire length of the incision, exposing the deep epigastric vessels which were ligated and cut. The vas deferens was taken as the guide to the ureter. It was followed by blunt dissection to the base of the bladder. The sigmoid and small bowel were pressed toward the median line by gauze sponges. The origin of the internal oblique and transversalis muscles was severed from Poupart's ligament for a distance of about 2 inches. This afforded sufficient room to reach and explore the ureter from the pelvic brim to the base of the bladder. The stone was felt in the ureter; an effort was then made to milk it into the bladder and also toward the kidney: both these proved impossible. An incision was made into the ureter, parallel to its long axis, about 1 inch below the brim of the pelvis; a stout catgut ligature had been passed around the duct as a guy rope. The ureter was empty; there was no staining of the tissues with methylene blue. It was thus evident that anuria existed in the left kidney. A flexible olive bougie was passed into the ureter and the stone located. The grating of the probe against the stone could be felt distinctly. Another attempt was made to push the stone into the bladder: it was unsuccessful. Then a long curved alligator-jawed forceps was passed into the opening in the ureter. The stone was seized in its blades and carefully extracted. The

entire course of the ureter from kidney to bladder was now carefully explored and found perfectly clear.

No attempt was made to suture the ureter. The loose tissues on either side of the wound were drawn together, and the same suture caught about a gauze drain, covered with rubber tissue. This drain was brought out at the upper angle of the wound. The spermatic cord was left behind the transversalis fascia. This fascia with the transversalis and internal oblique muscles was sutured to Poupart's ligament. The lower angle of the wound was drained with a cigaret drain which passed down to the side of the bladder. The external oblique was closed with a continuous catgut suture, and the skin with silkworm-gut sutures. A catheter was passed into the bladder every day to keep it empty.

The operative procedure in these cases varies in accordance with the side of the body, as has been pointed out both by the author of the paper and by Dr. Brown. For instance, if the colicky attacks are on the right side, we have always to think of the appendix, and that is an indication for opening the abdomen. On the other hand, if the attacks are on the left side and the patient is a man, there is no indication for opening the abdomen to remove such a stone in my opinion, because it can be done more safely without the complication of cutting into the peritoneum. In women these stones can be reached through the bladder when they are low down, depending on their size and other modifying conditions.

Note.—October 18, 1909. The case here reported drained for twelve days, was out of bed on the fourteenth day, and ready to leave the hospital.—A. H. F.

DR. H. W. LONGYEAR, Detroit.—There is one very interesting point in this valuable paper to which I desire to call attention and discuss, and that is the differential diagnosis between ureteral pain and pain in the abdomen due to appendicitis. Like Dr. Brown, I have seen a great many operations done on the appendix that were undoubtedly unjustifiable and which were prompted by the pain in the ureter under a mistaken diagnosis.

With regard to those cases in which we see more or less of that which we call storms of uric acid, coming from intestinal toxemia, in which we know that there are large quantities of uric acid thrown out from the kidney which pass down the ureter, causing it to become irritated, and frequently resulting in great pain, and when on the right side it is apt to be mistaken for appendicitis, and the temperature becoming elevated from the toxemia, simulates it still more. These cases should be examined very carefully so that this mistake shall not be made.

I was called by telegram to northern Michigan during a cold winter snap to operate on a case of supposed appendicitis. I went there, rode in an open sleigh some twenty-four miles in a snow storm, and found it was a case of uric acid impaction in the ureter following, as I have described, intestinal toxemia. A good course of antiseptic treatment, both of the urinary and

alimentary canals, relieved this patient in three days. In this case there were blood cells in the urine and much uric acid and mucus. The previous history of the case indicated that the trouble was of intestinal origin. These cases are exceedingly puzzling and a differential diagnosis is not easy, but I think an important point in making it is the board-like condition which we feel and which belongs to appendicial irritation, but which is not present in ureteral irritation. Putting this together with careful microscopical examination of the urine and we are enabled to make a differential diagnosis without much trouble.

DR. MILES F. PORTER, Fort Wayne.—There are one or two points I would like to emphasize concerning the colics which occur in the kidney, and are due to the passage of blood clots along the ureter. Experiences of that kind I have had several times, one of them quite recently in which, together with typical ureteral colic, the patient had anuria. We also had a clear case of Bright's disease to deal with. This had been known to exist for a number of years. In this case, as the subsequent post-mortem revealed, we had absolutely no calculous formation whatever. Moreover, this case illustrated the value of skiagraphy in that the skiagram did not show ureteral calculus. This case prompts me to ask Dr. Ferguson a question as to whether or not there was blood in the urine in his case. There was blood in the urine in my case. We had a typical kidney colic and anuria. Fortunately we had a very distinct history of an old nephritis. Recently, during the course of an operation for appendicitis, I came upon what felt to my finger like a calculus at the brim of the pelvis on the right side immediately over the ureter, and upon closer examination it proved to be a calcareous deposit as large as the end of my thumb in the mesentery of the ileum, immediately overlying the ureter. I removed it. I cannot say whether it was a calcareous degenerated gland or not. This case simply emphasized the care that should be taken in these conditions.

Incidentally I might say that not a great many months ago I had a case which illustrated several points connected with ureteral calculus. An interesting point was the length of time the stones were carried by the individual, who, in the meantime, was in a fair degree of health. One stone was carried for forty-seven years. It was situated just below the brim of the pelvis and weighed 1,440 grains which, I believe, is one of the largest stones ever taken from the ureter, if not the largest. Young reports one stone that was carried for twenty years.

Another point to which I desire to call attention is the desirability of removing the ureter in these cases. These stones, particularly after they have been added to for a long number of years, become very large and are no longer, strictly speaking, ureteral stones. The removal of the ureter will not necessarily remove all of the calculous formation along the course of the ureter. A number of these stones have found lodgment outside

of the ureter as a result of pressure necrosis, and I presume there are still further concretions. While it is true in the ordinary case, as in Dr. Ferguson's, we will be quite sure that if we remove the kidney and ureter we will remove all of the stones, yet in these long-standing cases stones will be found outside of the ureter, hence the removal of the ureter with the contained stones does not remove all the calculi which must be removed before the patient makes a complete recovery.

DR. C. C. FREDERICK, Buffalo.—This is a timely paper because there is no question that there are many cases of trouble, especially pain in the right ureter, for which the appendix in the past has been blamed and removed. I have seen quite a number of cases of this kind in one way or another in my own practice and in that of others, and have been forced in the last three or four years to a realization of the fact that pain upon the right side, on deep pressure over McBurney's point, does not always mean that a patient has chronic appendicitis, and I do believe in many instances the trouble is in the ureter. At this point I want to say that there are so many conditions that can exist in the intestinal tract, various concretions, etc., that the skiagraph may get into just the right position and deceive us about the existence of stone in the ureter.

To illustrate, five or six years ago I attended a young woman, twenty-seven years of age, who had all the symptoms of stone in the kidney, with pain and blood in the urine, and the like. She had had these symptoms for two or three weeks. She continued having attacks of pain. I had a skiagraph made which showed the shadow of a stone in the ureter. It was situated up high, not very far below the pelvis of the kidney. I opened from behind, went clear down to the brim of the pelvis and was not able to find a stone there. I then opened the pelvis of the kidney, explored it, but the stone was not to be found. Then I went way down here (illustrating on the board) and explored a little of the peritoneum, and then went clear down to the bladder. I found no stone anywhere. She had never passed a stone. I made up my mind that there was a concretion in that woman's intestinal tract on the left side and that it could not be the appendix. But I was led astray. She has since had three or four similar attacks. I have had skiagraphs taken and have been unable to find any evidences of stone. I do not know what the cause of the trouble is, but I do know she had these attacks and I operated on her and found nothing. I give you my experience for what it is worth. The shadow was about the size of a good-sized pea. It looked like a stone in the ureter and I was almost certain I would find it, but did not.

This is a very important subject and the author of the paper is to be congratulated on having presented it in such a forcible and pointed way. There is no doubt that the lower abdomen, and particularly upon the right side, must be subjected to a

very careful differential diagnosis in cases of indistinct pain in that region.

DR. MAURICE I. ROSENTHAL, Fort Wayne.—I read a paper before the District Medical Society here some four or five years ago, which was published in a surgical journal in New York, wherein I reported a case of ureteral stone, complicating an appendicitis. The paper was entitled, "Some experiences from a thousand abdominal sections." That was the only case I had then seen of ureteral calculus complicating an appendicitis. Since then I have been careful to investigate the right ureter in all operations for appendicitis, and I have not met with another such case, so that, after all, I take it that this complication is not so very frequent. We know that stone in this region does occur, yet when operators of such large experience as we have before us to-day, only report comparatively few cases we may take it for granted that it does not occur frequently.

I have not had much experience in the extraction of stones from the ureter, but I have had a reasonable experience in ureteral surgery. In the course of an operation for the removal of cancer of the uterus, the radical operation devised by Wertheim, we have occasion to handle the ureter considerably, and I wish to draw attention to a point which is of importance. I believe the danger of ureteral fistula is less from the simple incision of the ureter in extracting the stone, than from excessive manipulations.

The ureter very easily becomes necrotic at the point where it is lifted well from its bed and handled in its entire circumference, especially if its accompanying circulation is interfered with. I think we need not fear fistula from simple incision in the long axis of the ureter in extracting the stone as long as we avoid excessive manipulative trauma.

DR. HUGO O. PANTZER, Indianapolis.—I have been interested in this valuable paper and in the discussion. I rise simply to make a statement in regard to a point in connection with the diagnosis bearing upon an observation in a kind of case different from this. In operating on a case of gangrenous cholecystitis, where the contents of the gall-bladder had discharged into the peritoneal cavity, I found at the bifurcation of the abdominal aorta a cluster of small bodies that were exceedingly hard and fixed, and evidently were disassociated from the condition for which I had operated. I gleaned several of these stones and found them to be calcareous degeneration of tubercular glands. From the history of this case, subsequently obtained, this woman, now fifty years of age, had in early life a disease of unrecognized character, but which kept her ill and weakly for several years. This case is of much interest here inasmuch as a like condition may some time by the *x*-ray picture simulate ureteral stones.

DR. JOHN W. KEEFE, Providence.—I would like to say a few words with reference to the use of the wax-tipped catheter. We all know we may be mistaken in reading a radiograph, although the radiograph perhaps will give us more information at the present time than most other methods. If a radiograph is made while the ureteral catheter is in the ureter, or possibly a lead catheter or lead bougie placed in the ureter, it may give us valuable information.

I wish to mention the point that previous to the time we had such very fine radiographs as are made to-day, that I introduced a wax-tipped catheter and found markings on the wax. It was introduced into the pelvis of the kidney, and subsequently on the day that the patient was to be operated on, I made an incision in the loin and found the catheter in contact with the stone in the kidney, showing that the first markings on the wax were correct. We then may say that in these obscure cases we have another method of helping us to make an accurate diagnosis.

DR. JOHN YOUNG BROWN, St. Louis.—This is an important subject, and I should like to add a few points brought out in the discussion.

The differentiation between acute appendicitis and acute attacks of ureteral colic, as a rule, is exceedingly easy. I do not think it is from this character of cases that difficulties of diagnosis occur, but in the so-called chronic cases, those that come with a diagnosis of chronic appendicitis, where both the laboratory findings and skiagraphic findings point to one of two conditions, but there is no one method by which a diagnosis can be arrived at. It is exceedingly important, not only from the standpoint of the surgeon but, likewise, of the patient, that an accurate diagnosis be made in these chronic cases. There is hardly an operator in this country who has not had a series of patients with appendicitis, in whom he removed the appendix, and has found that there was absolutely no sign of adhesions, no occlusion of the appendix, when the case has come to the operator with a history of having had trouble in the lower right quadrant of the abdomen, the operation giving no relief. It is in this type of cases I think in which it is exceedingly important that a differential diagnosis be made, and I think a differential diagnosis can only be made by resorting not only to the laboratory findings, but to a careful history of the case, to the skiagraph, to cystoscopic examination, as well as ureteral catheterization; and when all of these methods are used we may yet frequently find cases in which the diagnosis cannot be made until the abdomen is opened.

Let us take up laboratory work in cases of this kind. We may find a patient who has had an acute attack of appendicitis, with the appendix adherent to the right ureter, bringing about a ureteritis, and we may find in the urine not only blood, but pus; in addition to that the skiagraph may show a concretion, which, if taken into consideration with the laboratory findings,

will lead one to conclude that there is a stone in the ureter, when the trouble is not in the ureter, but in the appendix. It is in justice to our work that I want to accentuate this point, and I want to go on record as saying, I do not think any surgeon has a right to open anybody's abdomen for a supposed chronic appendicitis until that patient has been given a most careful, painstaking investigation, and until the conclusion has been arrived at that the trouble is not in the ureter, but in the appendix.

This is one of the most important papers that has been brought before the Association in a long time, and its character of work is attracting a great deal of attention, and, as the gentleman who preceded me has said, few of these cases have been reported. However, a few of them are reported and more of them are being reported for the reasons that here have been brought out. These patients are being investigated, and we are finding stones in the ureter now that we did not find heretofore, and we are relieving patients who were not relieved by operation for appendicitis.

DR. K. I. SANES, Pittsburg.—I should like to mention a case which illustrates that difficulty in diagnosis between ureteral trouble and appendicitis is not only met with in the chronic cases, but in the acute cases.

A young woman fell off a train and shortly afterward developed some acute symptoms of pain in the region of the right kidney, with elevation of temperature. A diagnosis of typhoid fever was made. She was treated for it some time in a hospital and discharged as cured. She soon developed another attack which was diagnosticated as recurrent typhoid fever. She was sent back to the same hospital, but her temperature only lasted two or three days, then subsided, and she was sent home. While at home she developed a severe attack of pain in the right side, and the family physician discovered a tumor in the region of the right kidney (hydronephrosis?). She was sent to my service at the West Penn Hospital, but I could find no tumor and turned her over to the medical department. While there she had an attack simulating acute appendicitis, with severe pain in the right side, tenderness, vomiting, and temperature. In view of the fact that this attack came on just prior to menstruation (she was to menstruate in a day or two), I was asked to examine her pelvic organs, and found on vaginal palpation the right ureter thick, cord-like, and very tender to the touch.

I catheterized the right ureter, and in the urine so obtained a considerable quantity of blood-cells and quite a number of leukocytes were found. Unfortunately, no bacteriological examination was made. I diagnosticated descending ureteritis following a pyelitis. Having obtained a history of pain in the right side and a history of a fall, I excluded appendicitis by the absence of rigidity on that side, by the pain on pressure alongside the ureter, and by renal tenderness. But in spite of these findings the symptoms were so suspicious of appendicial trouble that the

surgeon in charge of the general surgical ward thought it advisable to operate. The appendix was taken out, but the pathologist reported it normal. While recovering from the appendicial operation she developed a severe pain on the other side with a rise of temperature. I again made a cystoscopic examination, and found a trigonitis and ascending left ureteritis. That was four or five years ago. At present this young woman is in another hospital. Whether it will be necessary to operate for bilateral tubercular pyelitis, I do not know, but the right side is in a bad condition.

The reason why I report this case is to emphasize that we find difficulty in making the diagnosis not only in the chronic, but in the acute cases of appendicitis. Furthermore, not only a stone in the ureter, but ascending and descending ureteritis will give us symptoms simulating appendicitis. It did so to such an extent in this case that, in spite of the findings of ureteral trouble at the time, the surgeon was so sure of appendicitis that he deemed it necessary to have the appendix removed.

DR. JONAS (closing the discussion).—I certainly appreciate this very free and full discussion of my paper. In the introduction I tried to point out that we should not rely upon any one method of examination, but that the safety in diagnosis lies in a combination of all the methods which I have mentioned in the text. An exact history of the case and repeated and thorough examinations of the urine, since blood in the urine may be absent at one time and may be present at other times, are very essential; frequently blood is absent during the attack itself, while after the attack or after the relaxation of the stone in the ureter we may find small traces of blood on which so much depends.

In regard to the *x*-ray examination, I pointed out in the paper that a shadow demonstrated by the *x*-ray in the region of the ureter does not prove anything in regard to the location of that shadow. There may be some concretion in the neighborhood of the ureter, or a fecal concretion in the tip of the appendix, or a phlebolith in the neighborhood, or any other condition may produce a shadow in the ureter, and for that reason the *x*-ray examination, the cystoscopic examination, and ureteral catheterization have to be combined; and not only must these methods be combined, but we must arrange the ureteral catheter so that it throws a shadow on the skiagraphic plate. For that reason we introduce a wire stylet or mercury-filled catheter, which is so much used in Germany for this purpose.

Dr. Brown said he wishes to go on record to the effect that no surgeon has a right to remove the appendix for a chronic appendicitis, without a thorough examination. I do not need to say that I am heartily in accord with what he has said, and I want to record myself in regard to the following point, and that is, I think, the main point of my paper: we have no right to remove a ureteral stone in the locality with which my paper deals without a thorough

examination of the organs which may be responsible for such a condition. We do not accomplish much more by the removal of the ureteral stone in some cases than with a good hypodermic of morphine. The patient may be relieved only for the time being. If we remove the stone or stones the patient may have trouble again in a little while, and some surgeon, if we do not remove the cause of the stone, may do the same operation, and that patient may go on being operated on every year or two, and usually by a different surgeon.

Dr. Ferguson said that on the right side the appendix might be responsible for such a condition. In women, the tube and ovaries and adhesions around them may be responsible for such a condition on the right side. I did not intend to enumerate all the causes which might be responsible for ureteral stone in this locality, or I could have mentioned other causes for stone formation in the ureter in the corresponding locality on the left side. Sigmoiditis, for instance, might be responsible for stone formation in the ureter. Any infection of the mucous membrane of the rectum or of the sigmoid may be the first origin for an infection of the ureter, and in that way cause the formation of the stone or stones. We all know that the cause for stones is stagnation and slight infection, and not an acute infection.

In regard to the direction of the incision I did not intend to lay much stress upon this point, but it is really astonishing how much space one gets with a small cut at the margin of the rectus. If this method of making the incision is practised I think you will agree with me that it is an easy matter to expose the whole ureter from the brim of the pelvis to the bladder. This incision is preferable to the low gridiron incision, and it is also preferable to the incision above Poupart's ligament, as we use it in operations for hernia. Dr. Ferguson calls this a natural separation in this particular part of the body; it is just this natural separation I do not want since drainage has to be combined with this operation. We all know we can only depend upon a successful hernia operation if we do not drain. If we drain we will have a natural separation of the muscles, and in that way a cause for a hernia.

Dr. Ferguson said he had tried to push the stone into the bladder. I said in my paper I did not try to push it into the bladder, nor do I expect to try such a procedure, certainly not in male patients, since I find this little incision in the ureter was so easy and closes so rapidly that operations for the removal of stones from the bladder are much more uncomfortable.

In regard to ureteral fistula which Dr. Ferguson says is liable to persist, in these cases of mine and also in the cases reported in literature, I wish to say not a single fistula has been reported so far. I do not expect a fistula will ever follow such an operation if we are sure no stone has been left. Such a fistula may follow if we try to bring the ureter to the surface, for then the direction of the course of the ureter might be changed. The ureter should be left absolutely *in situ*. We have learned from radical opera-

tions for cancer of the uterus that we should not lift the ureter from its bed for any distance, as it may become necrosed.

Dr. Ferguson spoke of impaction. We should not cut out the stone at the point of impaction, since there we deal with inflamed tissue, but must try to push the stone a little upward from its point of impaction. Above the point of impaction the ureter is somewhat dilated. At this point we cut through nearly healthy tissue, and prevent the occurrence of a fistula.

Dr. Longyear said appendicitis irritation is not frequently present in patients with ureteral calculus. Dr. Brown and most of the gentlemen who discussed the paper pointed out (and I agree with them heartily) the extreme difficulty of making a differential diagnosis between appendicial irritation and ureteral irritation, whether produced by calculus, by clot formation, or whatever else. Professor Israel, of Berlin, who is a notable authority on operations on the kidney and ureter, says that frequently he is not able to make a differential diagnosis between appendicitic and ureteral colic. Even in acute attacks sometimes we cannot definitely make a diagnosis.

In regard to the frequency of stones in the ureter in combination with appendicitis, I wish to say, that if we look for these cases we will find them more frequently than we have done in the past.

I have visited several surgical clinics this year. Not long ago I spent two weeks in Chicago visiting surgical clinics, and among them Dr. Ochsner's. In one case he found a ureteral stone had been discharged sometime before he operated on a patient for chronic appendicitis. In another case a ureteral stone was present in connection with appendicitis. I know from the experience of other surgeons that they have operated for appendicitis at some time, and frequently on the same patients for stones in the ureter. It is likely these two conditions were present at the time of the appendix operation. I think the more we look for these causes the more frequently will we find them.

In regard to the wax-tipped catheter, I said in my paper I had not had any experience with it, and since we have more modern methods I do not think we should rely too much on wax-tipped catheters. Scratches may be produced by other things. The ureter may be narrower in one place than it is in another, and we may get a scratch which has not been produced by a stone in the ureter. If we find stones in the ureter, we should not entertain the belief they are the only trouble, but must look for the causes of the ureteral stone.

DR. ALEX. HUGH FERGUSON, Chicago.—I do not think Dr. Jonas meant what he said when he affirmed that we must also remove what is responsible for the stone, such as the appendix, the sigmoid and the like. These are not responsible for the stone. Surely he cannot mean that. He must mean that they simulate the clinical features of the stone.

DR. JONAS, St. Louis.—I meant to go on record as saying exactly what I did say in my previous remarks. I meant to say that the appendix, ovarian, tubal diseases and other pathological conditions in these localities may be the causes for stone or stones in the ureter. These troubles may produce infections in the ureter and adhesions of such an extent that they pull the ureter out of its place, may produce kinking of the ureter. The ureter in this way may either hold a small stone that comes down from the kidney in this place, or a stone may originate here and gradually increase in size around a small amount of mucus as a nucleus. If it were not for these pathological conditions playing an important part in the causation of stone formation or the retention of stone, the stone might pass easily into the bladder and be discharged without much trouble. Of course I did not mean to say that the sigmoid should be removed for this condition.

Ureteral stones on the left side in women may be frequently produced by adhesions of the tubes and ovaries, diseased condition of the sigmoid, and the like. In men they may be produced by an inflammatory condition of the sigmoid.

SURGICAL TREATMENT OF TUMORS OF THE BLADDER.

BY
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Providence.

It is estimated that from one-fourth to one-half of 1 per cent. of all tumors involve the bladder. Tumors of the bladder are most frequently met with in men over thirty years of age, and are more often found in males than females. Any portion of this organ may be affected, but the lower half of the bladder is the usual situation of new growths.

We find a large variety of tumors affecting the bladder—namely, papilloma, carcinoma, adenoma, cysts, fibroma, myxoma, sarcoma, myoma, chondroma and dermoid. From 65 to 75 per cent. of tumors are malignant. It is believed that benign growths may become malignant and that malignant bladder tumors remain localized for a comparatively long period; hence, we may look for good results by an early and thorough removal of the neoplasm.

Papillomata originate in the mucous membrane and submucous tissue. They are usually pedunculated but rarely may be sessile. They consist of long fimbriated processes or villi. They have a tendency to recur after removal and may propagate by contact. Mucous polypi are found during childhood.

Carcinoma occurs late in life; while sarcoma may appear during childhood but usually develops after middle life. Fifty-two per cent. were over forty years of age and 28 per cent. under ten years of age, in a series of fifty cases reported. Albarran reports one hundred and thirty-two cases of tumors of the bladder; one hundred of these were cancerous and twenty-four papillomatous. Carcinoma forms a nodular, ulcerated and irregular growth. It invades the muscular wall but may involve any portion of the bladder.

Urinary salts may be deposited upon the raw areas and these may break off and be found in the urine. This may lead one to suspect the presence of a calculus. Adenomata are flat or nodular in appearance and may attain a large size. Fibroma, myoma, myxoma and cysts rarely cause hemorrhage but may

produce pressure symptoms. Chondroma and dermoid tumo are very rare.

The most constant symptom of papillomatous growths is hematuria. The bleeding is usually bright and terminal and occurs at irregular intervals. The hemorrhage may not recur for months or even years. The amount of blood lost varies and is not dependent upon the size of the growth. Clots may form in the bladder and cause pain, frequency of micturition and retention of urine. Cystitis, hydronephrosis and pyelonephritis may be sequelæ. We often find the patient in an anemic condition from the excessive loss of blood. Sepsis and uremia due to an ascending infection may result.

Malignant disease is accompanied by bladder disturbances, frequent and painful micturition, tingling and itching sensations in the glans penis, severe cystitis, sensations of weight in the pelvis and pains extending along the inner portions of the thighs. Hematuria which is prone to be slight, persistent and painful is found in the later stages of the disease. Hydronephrosis, pyonephrosis and pyelonephritis are frequent complications.

A cystoscopic examination of the bladder should be resorted to early, as it is the greatest aid that we possess, to the formation of a correct diagnosis in bladder diseases. The early detection of a growth may be our only hope for saving life. Rectal, vaginal and bimanual examination may reveal a bladder tumor or infiltration of the bladder wall and should be practised. These examinations may also be made while viewing the interior of the bladder with the cystoscope. Malignant disease of the base of the bladder may be mistaken for hypertrophy of the prostate.

The surgery of tumors of the urinary bladder is in a transitional state. The last word has not been said. While the perineal and vaginal routes have been abandoned by most surgeons, some now prefer the urethral, while others the suprapubic extraperitoneal and yet others the abdominal intraperitoneal route or a combination of both. The medical treatment of vesical growths is often prolonged until surgery is of no avail.

It is important to locate the growth with the cystoscope and to make one incision in the bladder for its removal, when possible, rather than a routine median incision. The exact location and type of the growth should determine the choice of operation.

Comparatively few men have become expert with the operative cystoscope and these prefer to remove all benign growths by the endovesical method. Nitze reported 150 cases of papillomata of the bladder removed with the aid of the operative cystoscope, with three failures, one death and ten recurrences. It may require a number of sittings to remove a large growth by this method but it certainly is of value in the hands of an expert.

The suprapubic operation, working in the prevesical space, is the method most frequently employed at the present time; although the abdominal intraperitoneal route has many points in its favor. It gives one plenty of room in which to operate and one can see exactly where to excise or cauterize the growth.

The cystoscope is an instrument with which we all should become more familiar. It gives us accurate knowledge of many kidney and bladder conditions that cannot be acquired in any other way. A surgeon who undertakes the removal of a bladder tumor can perform his work more intelligently, if he has viewed the growth through a cystoscope and gained an idea as to its character, location and size. Recently a certain writer in genitourinary surgery stated that he did not think it an instrument of value to the general practitioner or the general surgeon. If the general surgeon is the man who is to remove the tumor, why should he not use and know how to to use, the cystoscope, if it be of value to him and his patient?

One should become familiar with both direct and indirect view instruments and with the appearance of the bladder when distended with either water or air. I have had two cases in which specialists in genitourinary work, failed to find a tumor of the bladder owing to the presence of blood which obscured the view through the water which was used to distend the bladder. The use of a cystoscope with air distention revealed the growths in both instances. One should not become wedded to one type of instrument: they all have their good points. The brilliant work that has been accomplished with the Nitze, Casper and Albarran cystoscopes has led some men to overlook those instruments that allow distention of the bladder with air.

The cystoscope will give one a better view than is often obtainable through a suprapubic incision. How difficult it is to see the interior of a contracted bladder, especially in obese patients, through the usual suprapubic incision in the prevesical space; and how easily one can reach the bladder through the

abdominal wound made in operating for disease located in the pelvis. Then why not open the abdomen in most of the cases where we wish to operate for the removal of bladder tumors?

The choice of the anesthetic is an important matter for consideration in the removal of bladder tumors, as the patients are often found in a debilitated condition from the loss of blood, sepsis or diseased kidneys. Nitrous oxide gas and oxygen is preferable on account of its safety and its nonirritating effect upon the kidneys. It permits a speedy recovery from the anesthetization and early voluntary micturition.

I particularly wish to call attention to the steps of an operation for the removal of tumors of the bladder which I believe has many points in its favor. I shall describe the method which I first employed, some five years ago, in operating for the removal of a papillomatous growth of the bladder in a man sixty-six years of age. He complained of frequent micturition, pain and intermittent hematuria for a period of three years and had lost forty pounds in weight during the last two years.

An internal urethrotomy was done to relieve a stricture due to a gonorrhea contracted in early life. A cystoscope was then introduced and a papillomatous tumor could be seen posterior to and about 1 cm. from the left ureteral opening. The ureters were catheterized and the urine from both kidneys was found normal. A week later the patient was anesthetized, the cystoscope introduced and the left ureter catheterized. The ureteral catheter was allowed to remain during the operation, which permitted the removal of a portion of normal bladder wall about the growth, with no danger of wounding the ureter: as I could determine by palpation of the catheter in the ureter, at any stage of the subsequent operation, the exact location of the ureter. It is a great source of comfort to the operator, as well as safety to the patient, to be able to define the position of the ureter, when one is operating in a field adjacent to it. The cystoscope was allowed to remain in the bladder.

The patient was then placed in the Trendelenburg position and the abdominal cavity opened, in the median line, between the umbilicus and the pubes. The intestine was walled off, with a roll of sheet rubber, seven inches by fifteen feet and of the thickness of the rubber dam that dentists use. Gauze sponges protected the edges of the wound, an assistant looking at the growth through the cystoscope, directing the beak of the instrument against the wall of the bladder at the site of the tumor.

The transmitted light from the cystoscope could be seen and the beak of the instrument felt through the bladder wall, thus defining the position of the tumor as seen through the abdominal opening.

With one hand I made counterpressure on the peritoneal side of the bladder and, beginning in the prevesical space, separated the peritoneum from the bladder, down to the site of the tumor. The bladder wall over the center of the tumor and including the greater portion of the growth was then grasped with a volsellum forceps. The median incision in the peritoneum was now closed with a continuous catgut suture, thus permitting the subsequent operative procedures to be carried out extraperitoneally.

The tumor with a wide margin of normal bladder was excised with a knife and the opening in the bladder was closed with two rows of sutures, the first row a continuous Connell mattress suture of catgut, including the mucous and muscular walls; and the second row a continuous Cushing suture of Pagenstecher linen, in the muscular coat. The abdominal wound was closed in layers, chromic gut in the fascia, with a bite in the muscular wall of the bladder, to narrow the prevesical space, plain gut in the areolar tissue and a subcuticular silver wire in the skin. A small rubber tissue drain was placed in the lower angle of the wound, down to the sutures in the bladder. This drain was removed in forty-eight hours. Primary union took place. After the operation the patient may be allowed to pass water at frequent intervals or he may be catheterized.

During the removal of the growth by this method, one avoids the risk of infecting the peritoneum with the septic contents of the bladder, as a cystitis is usually present. Should leakage occur through the bladder wound, the small drain will guide the secretions to the surface, rather than allow them to enter the abdominal cavity and produce a peritonitis, which might prove fatal.

The operation may be rapidly performed and takes much less time than it does to describe it.

To sum up:

1. Anesthesia with nitrous oxide gas and oxygen.

2. Cystoscopic examination, to determine the site and character of the tumor.

3. Ureteral catheterization. The catheter is left in the ureter as a guide during the operation.

4. The high Trendelenburg position.

5. Opening the abdominal cavity, to accurately locate the growth, to aid in separating the peritoneum from the bladder over the site of the tumor and, also, to allow plenty of space in which to operate.

6. An assistant locates the growth in the bladder with a cystoscope during the operation.

7. Closure of the peritoneal cavity, the growth having been removed through an extraperitoneal wound.

8. Immediate suture of the bladder.

9. The patient voids urine or is catheterized at frequent intervals.

DISCUSSION.

DR. C. C. FREDERICK, Buffalo.—I have operated upon three cases of carcinoma of the bladder, doing three different operations, the last one about three months ago. The first one occurred some six or seven years ago, the tumor being located in the posterior wall of the bladder in a woman, just back of the trigone. Cystoscopic examination showed an eroded ulcerating carcinoma about the size of my thumb nail, with a crater-like formation around it, elevated, and the tumor could be easily felt by bimanual palpation through the vagina, as it lay just anterior to the vesico-uterine fold in the vagina. This woman was quite anemic. She had been bleeding for two years.

I determined in this case to do the operation through the vagina. The operation was similar to that for vaginal hysterectomy. I opened the anterior fornix, stripped up the vaginal mucous membrane, peeled that off, separated the bladder wall, excised the tumor, together with a wide space around it, and then closed the bladder wall with two rows of sutures, stitching the vaginal wall upon the cervix without draining. She made a good recovery, went along for a period of three years, and I supposed was going to get well. She eventually had a metastasis on the left side of the original scar, but did not undergo a secondary operation, and finally died of anemia.

In the second operation I did a total extirpation of the bladder with the uterus. The tumor occurred about the junction of the bladder and the uterus, and involved the anterior wall of the womb. I cut down in that case intraperitoneally, removed the uterus and bladder *in toto*, turning the ureters into the vagina, leaving the urethra, hoping eventually to do the operation I saw Pawlick, in Prague, do, of making an artificial bladder out of the vagina. The woman went along for a period of two months, but she was in a bad condition, and eventually died from infection which traveled up the ureters into the kidney.

The third case I operated on not long ago, and it was similar to the one which has been reported. I opened above the pubes,

went down in the prevesical space, separated the bladder upon the left side where the tumor was—quite a large one which involved the orifice of the left ureter. It also involved the coats of the bladder. I separated the bladder, went down to the ureter, though I did not place any guide in the ureter because it was easy to find it without a guide. I excised the whole mass together with the last inch of the ureter, then closed up the bladder, transplanting the end of the ureter into it through a separate opening. In this case I not only established drainage above, but I also punched a hole into the vagina, and carried a strip of gauze down through the vagina.

I have thus related to you in brief my experience with carcinoma of the bladder. I am simply waiting to see whether there will be a recurrence in this last case or not.

DR. ERNST JONAS, St. Louis.—I merely wish to emphasize one point mentioned by the author in regard to the character of the tumor. With the cystoscope we are usually able to settle definitely the size of the tumor, but I do not think it is advisable to be too sure in regard to the character of the tumor.

I wish to report briefly one case in which there was, for a long time, profuse bleeding from the bladder. On account of this bleeding I was unable to determine that there was a tumor of the bladder and much less, that there was a malignant tumor of the bladder. I told the patient as much, and then he went to an "expert" in cystoscopy, who assured him that it was without doubt a cancerous growth of the bladder. The patient went abroad and consulted one of the best authorities in Europe. As there was profuse bleeding from the bladder a good cystoscopic picture could not be obtained, and the diagnosis of the tumor (?) was left doubtful. The patient returned from Europe and we proposed exploratory operation to him, but he refused to be operated on. This patient is now well, four years after these cystoscopic examinations; that is, he is practically well, only getting, from time to time, small hemorrhages from the bladder. While cystoscopic examination is very valuable, we are not always able to settle definitely, in all cases, as I have said, the character of these growths of the bladder.

DR. MAURICE I. ROSENTHAL, Fort Wayne.—I have had occasion to operate on a number of patients for carcinoma of the uterus, involving the bladder, doing the radical operation for this disease. I had occasion, by the way, to remove a piece of the bladder from a woman, fifty-eight years of age, some four years ago, in a case of carcinoma secondary to, or rather by continuity of structure, and secondary to the carcinoma of the uterus. This woman came in with a large carcinomatous cervix. Examination required immediate tamponade, in order to control hemorrhage. We rapidly curetted the soft cervix, cauterized thoroughly, and opened her abdomen. The bladder had failed to give way from the uterus, as usual, so that we removed both broad ligaments, half or

more of the vagina, together with a piece of the bladder about as large as a dollar. In this case it was necessary to excise a portion of the ureter, and we immediately implanted the ureter, first having closed the bladder, after a method which I devised some years ago. An assistant inserts a long hemostat into the bladder through the urethra, poking it against the wall of the bladder, which is incised from the abdomen at the point where the hemostat impinges. The hemostat is made to grasp the cut end of the ureter. The assistant drawing the ureter down into the bladder in this way (illustrating on the board) and holding the ureter in the bladder. With a few stitches now the ureter is fixed in its new position. The ureter is incised at the cut end in the long axis about 1/4 inch to prevent stenosis. I have not heard from this woman in the last year, but I think she is still in fairly good health. She was up to a year ago. I have used this method three times altogether, once about eight or nine years ago, when I cut the ureter in making an incision for the removal of a large myoma. I afterward made a cystoscopic examination and found the ureter was functionating properly. I employed this method a second time in a case of radical operation for the removal of cancer, in which I excised a large portion of the bladder, together with a part of the vagina. This woman died from metastatic carcinosis within a year. In this case I implanted the ureter down here (illustrating) by the same method. In this case by reason of shortening of the ureter the bladder was fixed by a few sutures, so that vomiting after the anesthesia would not force the bladder from the seat of implantation. The whole operation can be done in a few minutes.

DR. KEEFE (closing the discussion).—I have nothing further to add with the exception that I would like to have heard some expression of opinion of the members in reference to the method of removal of tumors of the bladder.

Referring to Dr. Frederick's remarks about it being easy to determine where the ureter was while operating, though it may be easy for him, I think many men have great difficulty in telling where it is while operating upon the bladder or doing a hysterectomy. Otherwise, we would not have instances of the ureter being wounded with resulting ureteral fistula. It is not an easy matter to start at the brim of the pelvis, open the peritoneum, and follow the ureter right down, loosening it up, as one may interfere with the circulation of the ureter, causing ureteral fistula to follow. It is an easy matter to introduce a catheter into the ureter, and you can readily determine where the ureter is located. In operating nowadays with gloves it is more difficult to feel the ureter than formerly, but with a catheter in the ureter one can always tell exactly where it is. I believe it is a great advantage to have a ureteral catheter introduced.

DR. FREDERICK.—I wish to say that in my last case the tumor involved the entrance of the ureter, hence I could not introduce

a catheter into it. I could find the ureter easily, and I think in the removal of a tumor from the bladder, we can, as a rule, find it easily.

DR. KEEFE.—I stand corrected with reference to what Dr. Frederick has said, but I still maintain that surgeons who are not doing a vast amount of work may find it a difficult task to locate the ureter in their operations. I recall the instance of a surgeon who has done a vast amount of surgical work, and yet who in operating for two hours in doing a suprapubic operation, was not able to locate the ureter. Of course, I think some men are more expert than others in this regard, but even the men who are doing surgery a good deal can tell where the ureter is better with a catheter within it than otherwise. In Dr. Frederick's case of course the catheter could not be employed.

RUBBER DEVICE FOR WALLING OFF THE INTESTINES DURING OPERATION.

BY
JOHN W. KEEFE, M. D.,
Providence.

I wish to occupy a few moments of time in showing a roll of rubber dental dam for use during certain operations, and which I have referred to in my paper on tumors of the bladder just read. It is made of pure Para rubber and is 15 feet long, 7 inches wide, and about the thickness of the ordinary rubber bandage of medium weight. I have used these rolls of rubber for about four years and find them of great advantage in walling off the intestines from the pelvis, or in walling the intestines from the gall-bladder in gall-bladder operations. I believe the rubber is less irritating to the peritoneum than gauze sponges which we usually employ to wall off the pelvis. It is well known, too, that many surgeons who have done a vast amount of surgery have been unfortunate enough to close the incision, leaving a sponge in the abdomen.

Fifteen years ago my attention was first called to the matter by a sponge having been accidently left in the abdomen. Twenty-seven hours after the operation I removed the sponge and found that considerable peritonitis had been set up by its presence, although when placed there originally it was sterile. The patient had peritonitis and some lymph was thrown out by the mechanical action of this gauze sponge. Although the patient recovered, since then I have never relied upon the counting of the sponges. On the occasion referred to I had a very efficient nurse, whose duty it was to do nothing but count the sponges as they were used.

The roll of rubber is sterilized by boiling, just as we sterilize our rubber gloves. It may be used a great many times. After it has been used, it is washed and boiled for twenty minutes, dried, powdered, and rolled until needed. Previous to operating it is again boiled with the rubber gloves for twenty minutes, then placed in a normal salt solution ready for use.

With the patient placed in the Trendelenburg position and the abdominal cavity opened, the intestines are drawn away from

the pelvis and the rubber introduced into the culdesac of Douglas, and in the right and left iliac fossæ. It may be necessary to use 4 feet, a dozen feet, or even more of the rubber during the operation. In case we have an abscess, a pus tube, or a cyst that is likely to rupture to deal with, we may place over the rubber one square sponge with a tape-and-clamp attachment, to catch any secretions. Of course we use sponges to clear away the blood at times and for that purpose I use a gauze sponge 18 inches long and 3 inches wide; so that the entire sponge may not enter the abdominal cavity at any time. Very few sponges are sufficient for an operation when the rubber can be used. We are not annoyed by the nurses' counting and discussing the loss of sponges. I depend solely upon myself and do not place an entire sponge inside the abdominal cavity, unless it has a tape-and-clamp attachment.

Portions of the rubber roll may be so placed that they protect the edges of the wound from infection and injury by retractors, as the retractors may be placed over the rubber.

The advantages of using the roll of rubber for walling-off purposes may be summed up as follows:

1. The rubber is less irritating to the peritoneum than gauze.
2. It protects the edges of the wound from infection and injury from retractors.
3. Fewer sponges are used during an operation.
4. It can be readily sterilized and used a great number of times.
5. It does away with the necessity of counting sponges as well as the danger of losing sponges in the abdomen.

OPERATIVE ENLARGEMENT OF THE PELVIS OF THE NONPREGNANT WOMAN.

BY
JOHN N. BELL, M. D.,
Detroit.

(With one illustration.)

THE operation of pubiotomy as a means of effecting delivery in moderately contracted pelves, where a trial at labor has taken place and efforts to deliver with the forceps have failed, is now an established operation, and is rapidly coming to the front as the proper procedure in such cases. The dangers incident to the operation, however, are by no means insignificant, and this fact led the writer to inquire into the methods at our disposal to obviate them.

To that end it was thought that the pelvis might be enlarged by operating in the nonpregnant state, and thus prepare the woman for future delivery. This thought at first seemed untenable, but we all know that in years past operations on the pregnant and parturient woman were only done in the most urgent cases, whereas nowadays it is considered little short of criminal to allow such extreme indications to arise before surgical measures are adopted.

The writer does not wish to be placed in the position of advocating this procedure in preference to premature delivery at the eighth month, or primary Cesarean section at term, but rather in order to bring the subject squarely before the Association for discussion, would assume that the operation is a justifiable one, and to that end presents arguments tending to such a conclusion. What, then, are the dangers and disadvantage of the operation at term?

First.—Hemorrhage, owing to the turgid condition of the pelvic vessels in the pregnant state. This danger is entirely eliminated when operating in the nonpregnant state.

Second.—Sepsis. When operating in the nonpregnant state more care can be exercised in securing a cleaner field for the operation, and the well-known susceptibility to infection in the puerperal state is avoided.

Third.—Injury to the vaginal attachments and bladder due to passage of the child's head against the severed ends of the bone, and undue separation of the divided ends, are all avoided when the operation is done in the nonpregnant state.

Fourth.—The difficulties of handling the patient after the operation at term are materially lessened.

FIG. 1.—Operative enlargement of the pelvis of the nonpregnant woman.

Indications for the Operation.—The indications for the operation are: a history of two or more difficult deliveries with child born dead, further attempts to secure a living child by premature delivery, a true conjugate of 7 1/2 to 8 1/2 cm., a dread of Cesarean section, and a strong desire on the part of the patient to give birth to a living child. It is granted that only a comparatively small increase in the pelvic diameters can be

secured when operating in the nonpregnant state yet, in a properly selected case, the increase is just sufficient to convert an otherwise dangerously contracted pelvis into a comparatively normal one for future childbearing.

Fry has shown that small children are generally born to small mothers, yet this is not always the case, for it has been the experience of many of us that large children are frequently born to small mothers whose husbands are large men. This fact should also be taken into consideration when summing up the indications for doing this operation. The case which I wish to report is as follows:

Mrs. R., aged twenty-seven, has never been pregnant but is very desirous, as is also her husband and mother, that she give birth to a living child. On examination, I found a uterus of normal size and anteflexed. She gave a history of dysmenorrhea, but otherwise the genital functions, except for the apparent sterility, were normal. Thinking the condition might be remedied by curettage, divulsion and the wearing of an intrauterine stem pessary, I advised this treatment. Noting also that the pelvis was small, I made pelvimetric measurements and found the following diameters:

External conjugate	17 cm.
Interspinous	19 cm.
Intercristal	21 cm.

I explained to the patient and her mother the difficulties which she would be likely to encounter, should she be obliged to give birth to a child through such a small pelvis, and suggested that, while she was under the anesthetic for the curettage, I could saw through the bone and enlarge the pelvis at the same time. They both readily consented, and I operated at Harper Hospital May 23, 1908, during clinic week.

In doing the operation I followed the method of Döderlein in his operation of pubiotomy at term, and spread the severed ends of the bone 1 1/2 cm., holding them apart with a small steel retractor which was left *in situ* for ten days. There was very little hemorrhage. Healing was slow; the wound became infected and convalescence was further complicated by a vulvovaginal abscess which developed about the twelfth day after the operation, the discharge from which yielded the gonococcus. She then acknowledged having had a similar swelling of the left labium several months before she entered the hospital.

She also developed a typical attack of scarlet fever, which ran the usual course, followed by desquamation. She has completely recovered, however, and walks without any discomfort. The pelvic measurements now are:

External conjugate,.....17 cm.
Interspinous, ...20 cm.
Intercristal, ...22 cm.

This shows an increase of 1 cm. in the transverse diameters. It is fair to presume that the flaring out of the left side of the pelvic ring would give greater space on that side for engagement of the head at the superior strait.

The author is free to confess that the indications for the operation in this case were only relative, as the woman had never been subject to a trial at labor, and the operation in this case was only attempted after a thorough understanding with the patient, her husband and mother. The skiagraph, taken six weeks after the operation, shows a light line of only about 1/3 cm. in width at the point of separation of the bone, while the pelvimetric measurement of the transverse diameters shows an increase of a full cm. This is accounted for by the fact that the bone was sawed through in an oblique direction from the median line outward, and the ray of light consequently shows only through the newly formed bone between the apices of the severed ends.

This proves conclusively that a distinct enlargement of the pelvis can be obtained by operating in the nonpregnant state and preparing the woman for future childbirth. The question of the advisability of this procedure remains to be determined.

DISCUSSION.

DR. E. GUSTAV ZINKE, Cincinnati.—This is evidently an entirely new departure in the practice of obstetrics. We always hail with delight anything new, useful, and of assistance in the trying hours of labor. Unfortunately, I missed the first part of the paper; but, judging from what I did hear, it is impossible for me to see what can be gained by an attempt to enlarge the pelvic ring in the nonpregnant state, with the hope of facilitating labor in a future pregnancy at the end of term.

The skiagraph presented by the author shows very little space gained in the line of separation of the bone by the hebosteotomy performed. One cannot even determine whether it was a splitting of the pubic bone or of the symphysis.

DR. BELL.—The operation consisted in sawing through the pubic bone.

DR. ZINKE (resuming).—The amount of room gained, 1 cm., in the external measurement would, of course, indicate a permanent enlargement in the diameters of the pelvis. If this be sufficient to give birth to a full-term child in this case, the author has accomplished his object. The condition of the pelvic joints in the nonpregnant state is entirely different from that peculiar to pregnancy. In the pregnant state all the ligaments are softened, and there is a yielding in all of them in every direction. Just how much dilatation of the pelvic canal can be obtained by a hebosteotomy or symphysiotomy in the nonpregnant state has never been determined; but it must of necessity be small. We do know, however, that a symphysiotomy or hebosteotomy will secure a separation of from 7 to 8 cm. at the point of division when either of these operations is done at or near the end of term. The procedure does not impress me favorably, but my discussion is based on theoretical grounds only.

DR. ALBERT GOLDSPOHN, Chicago.—I feel very much like Dr. Zinke in regard to the indications for the procedure discovered by Dr. Bell. In regard to the technic of performing such an operation, if I regard it as proper, I think I would saw the pubic bone very much on the slant, so that it could be spread open and yet keep the ends of the bone in contact. It could then be fastened with wire, and the wound closed, thus not predisposing the patient to infection by having a foreign body between the severed ends of the bone.

The chief objection to this procedure is this: when any separation in the pelvic bony ring is made at the time of childbirth a very much greater *temporary* separation of this bone occurs during the transit of the child, a separation of 2 inches or more occurring in extreme cases. The gap adapts itself by a very much greater accommodation to the needs of the case, than is possible if you simply secure a couple of centimeters' greater diameter in the *fixed* bony pelvis. As Dr. Zinke has said, this is a small addition and probably would amount to very little in the way of assistance.

DR. MILES F. PORTER, Fort Wayne.—One of the best things that has been said of this Association and its members is that we all like one another, and no matter what any of us may think of the papers of others, we still have great faith in each other's efforts, and I am sure Dr. Bell will still think we all like and love him, although we may not agree with him. But if you will permit me, Mr. President, I will say that this paper puts me in mind of a story.

An old maid was found by one of her friends one night sitting in a room crying, and upon inquiry as to the cause of her crying she remarked that she had just been thinking about how terrible it would be if she were married and had a baby, and the baby was in a cradle in front of a fire-place, if she had a fire-

place, and a big dog should push the baby up against the fireplace. (Laughter.)

This operation puts me in mind of that story.

DR. RALPH WALDO LOBENSTINE, New York.—I can add but little to what has already been said by Dr. Zinke. I cannot see any real excuse for the operation, as done by Dr. Bell. It appears to me that his patient should have been given the "test of labor" before performing the pubiotomy. Her pelvis was of the justominor type and it is in this very type of pelvis that surprising results take place in the second stage of labor. Owing to extreme flexion of the fetal head, in these cases, with a great elongation of the occipito-frontal diameter, surprisingly large babies are born through relatively small pelves. While the operation of pubiotomy has in my experience a decided future, still it is an operation that should not be undertaken too lightly.

DR. BELL (closing the discussion).—I do not wish to be understood as taking the position of advocating this operation. The dangers incident thereto at term are such that I was led to think of the operation, and, as this case was a favorable one on which to operate, I thought I would try and see what could be done. We all feel perfectly safe in operating in a well-equipped hospital where the patient can be well cared for and everything kept clean, but I think I was justified in doing the operation in this case in view of the fact that both the mother and patient agreed to it.

With reference to severing the pubic bone in an oblique direction there is great difficulty in keeping the bones apart. After you have sawed the bone through obliquely you are obliged to wire the bones, or adopt some procedure to hold them apart. I used a heavy steel mastoid retractor which grasped the upper edge of the pubic bone.

DR. Porter, in his remarks, hit the nail on the head. The indications for this operation are so few and so hard to find that hardly once in a lifetime will one run across a case suitable for the operation, but I must say I have been much pleased and gratified with the discussion.

CHYLOUS CYST OF THE ILIAC MESENTERY.

BY
CHARLES E. CONGDON, M. D.,
Buffalo.

THE patient is a boy five years and eleven months old at the time of operation, born of an Italian father and a German mother, the latter having been born in the United States. Both parents are young, healthy and with an entirely negative family and personal history. The mother was unusually well during pregnancy and both labor and puerperium were normal. The child was breast fed. In spite of these favorable conditions, he was cross, suffering from so-called stomach cramps, for which a physician was consulted when the child was three months old. At this time, the diagnosis of bubonocele was made and a starch bandage was applied, but it was removed after three days and the improvement in symptoms which ensued can scarcely be attributed to it. Indeed, the entire absence of any sign of an open ring at present casts doubt on the diagnosis, although it is conceded that spontaneous closure is of frequent occurrence.

Following this procedure, the child was quite well for about two years when, at the age of about two and a half years, he fell down five or six steps and, although there was no apparent traumatism, he began, after a few days, to suffer with pains referred to the abdomen and running down the left leg. The pains gradually increased in severity, though continuing intermittently, and the abdomen, always large, became more protuberant. At different times, different physicians treated the child under various diagnoses, such as trichinosis, stone in the bladder, kidney trouble, colic, and the like, but without much amelioration of the symptoms.

Dr. Hugh S. Townsend was called August 6, 1909, on account of pain in the stomach, which was relieved by castor oil. August 14, at 6 A. M. he was again called on account of a recurrence of the pain, with vomiting, ascribed to eating green apples the day before. He gave calomel followed by salts. At 1 P. M., on account of increased pain, continued vomiting, increasing

abdominal distention and failure of the cathartic, he gave an enema. This was repeated during the afternoon without success. While the abdomen was too sensitive for careful palpation, both the swelling and the tenderness were more marked over the region of the appendix and, though the temperature was normal, the pulse had become extremely rapid, therefore, with the evident intestinal obstruction present, it was decided that an operation was necessary. Accordingly, morphine was given to relieve the pain sufficiently to remove the child to the City Hospital.

I operated at 10 P. M., making the usual incision for appendix operations. On opening the abdomen, a tense cystic tumor presented. The tumor resembled an ovarian cyst but was more elastic and it had the color of omentum. On enlarging the abdominal incision, the tumor was found to be the distended iliac mesentery beginning about eighteen inches above the ileocecal valve. It was ovoid, with a valley lodging the bowel, and dwindling toward the posterior mesenteric attachment into a wedge-shaped separation of the mesenteric layers. The ileum corresponding to the mesenteric cyst was compressed into a white cord while, above, it was distended. After incising the cyst, about two quarts of milky fluid gradually drained away, the reduction of tension allowing the vessels of the bowel to fill and the pallor to disappear, while the relief of pressure caused the lumen of the bowel to become patulous and the distention above passed away.

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The cyst was sutured to the abdominal incision and was drained by a rubber tube held in place by a stitch. Otherwise, the abdominal incision was closed by through-and-through sutures of silkworm-gut. The relief was almost immediate, the vomiting ceased and the patient slept well all night. On the following day, two soap and turpentine enemas were given, returning clear except for small particles of fecal matter, no gas being passed with the injections. On the second day, the patient complained of severe abdominal pain, especially when urinating. Calomel followed by magnesium sulphate was given and, during the third day after the operation, the bowels moved twice, the stools being light brown and mainly liquid with some hard particles. The maximum temperature was 101.2° F. in the night following operation, falling to normal within two days. The pulse for the first two days of hospital treatment ranged between 100 and 120, thereafter between 80 and 90.

Two days after operation, August 16, the blood showed a moderate lymphocytosis, the physical examination, so far as it could be made at this time, being negative. The fluid, examined by Dr. Benedict with the assistance of Herbert M. Hill, Ph. D., chemist, showed the characteristics of chylous effusions but with the absence of sugar in each of the two samples furnished.

The tube was removed August 26. The dressing was changed again August 29, the wound draining freely but slightly. Beginning September 4, there was a recrudescence of pain and vomiting and the temperature varied between 98.4 and 100.2. Palpation revealed a reaccumulation of fluid though not nearly as great as at first. Accordingly, on September 8, the drainage wound was reopened by means of a grooved director and canula and nearly a pint of milky fluid was removed. Following this, the patient became more comfortable and left the hospital September 14, 1909.

L. Napoleon Boston, in the *Journal of the American Medical Association*, vol. xliv, 1905, reviews the literature of chylous effusions, collecting 126 cases and adding two original ones. All of these were ascitic except four which were cystic. All four were in infants of five months or less, all were drained, all recovered, and all were considered congenital. I have been unable, thus far, to find records of true chylous cysts in the adult or even at an age equal to that of the present case. The parents state that this child has always had a large belly and the history corroborates the idea that the cyst was congenital. I have also been unable to find any definite observations as to etiology of the obstruction of the lymphatic current, which is obviously the direct cause of the formation of a cyst or of a peritoneal effusion. An anomaly of development is the probable explanation, so far as it can be considered an explanation, in cases discovered early in life, while in adult cases of chylous ascites, cancer, tuberculosis and various other lesions are present. The boy has always been well nourished, indicating that there could not have been a complete obstruction of the thoracic duct, while the very limitation of the cyst to one part of the ileum would indicate that only part of the mesenteric lacteals are involved. Clinical cases of interruption of the thoracic duct in the neck, where the absence of effusion into the great serous cavities excludes indirect factors of depression as well as experimental section and ligation of the thoracic duct, have led to rather rapid inanition.

DISCUSSION.

DR. MILES F. PORTER, Fort Wayne.—In connection with Dr. Congdon's paper I wish to report a case of chylous cysts of the mesentery. The patient was a youth fifteen years of age, who gave a history of having had a number of attacks of what were pronounced intestinal colic; but when I saw the patient at night there was a clear clinical history of obstruction of the bowels with well-advanced peritonitis. Upon opening the abodmen I found we had to deal with a volvulus, and in unraveling this volvulus I found it was due to what proved to be chylous cysts of the mesentery. I found no less than five or six of these cysts developed within the folds of the mesentery, varying in size from the end of my finger to the size of a large walnut. These evidently had been the occasion of the volvulus. I made a resection of the gut. The patient died from the continuity of progress of the peritoneal infection. This case, if I remember rightly, was reported at the Oregon meeting of the American Medical Association, and the illustrations and report were published in the journal. The illustrations have also been published in Dr. Eisendrath's work on Surgical Diagnosis.

DR. ROBERT T. MORRIS, New York.—I would like to ask Dr. Congdon if sections were made, showing the embryonal defects or cells in this case.

DR. ERNST JONAS, St. Louis.—I want to speak on one point in connection with Dr. Congdon's paper—namely, intestinal obstruction, which was produced by this chylous cyst. Medicines are utterly futile in relieving an obstruction that is produced by such a cyst as this, or by any other organic cause of intestinal obstruction. I do not think we should ever try at this stage in surgery to relieve ileus by medicine. It is impossible to accomplish anything with medicine in any case of true intestinal obstruction. If we give medicine, no matter what the cause of the obstruction may be, we can only aggravate the condition of the patient. It makes the distention of the abdomen greater above the seat of obstruction and carries infection through the intestinal wall into the free abdominal cavity, producing in this way peritonitis. We see this so frequently after the treatment of appendicitis or any other cause of obstruction—namely, that the condition of the patient is very much aggravated soon after the giving of laxative medicines. The only conditions in which we would expect to accomplish anything with medicine would be in cases of fecal impaction, and even in these we do not need it. If we do not give the patient anything by mouth, but resort to the saline drop method, we usually can remedy these cases of fecal impaction. The point I wish to bring out is the great danger of giving aperient medicines in intestinal obstruction.

DR. ALEX. HUGH FERGUSON, Chicago.—I have been practising surgery for a great many years and I have never encountered a case of chylous cysts of the mesentery, so I think it is well for us

in discussing papers like this to speak of the relative infrequency of these cysts.

I wish to compliment Dr. Congdon on his paper, and on presenting such an excellent report of his case.

DR. CONGDON (closing the discussion).—In reply to Dr. Porter, I would be glad to have the exact reference to his case report. Dr. Boston seems to have covered the literature carefully up to 1905. We reviewed the literature as thoroughly as practicable in the short time at our disposal, but, obviously, there may have been reports which escaped our attention.

In regard to Dr. Morris's question, the examination was entrusted to Dr. Benedict and as he made no report as to the occurrence of embryonic cells, we may take it for granted that none were found. (Note: It was subsequently learned that none were present.)

The remarks of Dr. Jonas with regard to the importance of diagnosis in cases of suspected appendicitis are very timely. Certainly, we should endeavor to precede operation by a thorough study of the case, yet it must be borne in mind that the surgeon and even the attendant who refers the case for operation as in the present instance, may not have had the opportunity for prolonged observation, and that the urgency of the symptoms may not only interefere with careful examination but may actually contraindicate a delay sufficient for an elaborate diagnosis. The present case is, in a way, typic of many which will be considered as appendicitis and which require immediate surgical relief. The liability to a technical error in diagnosis is, with our present knowledge, inevitable in but a small percentage of cases. The practical point is that the surgeon must anticipate this liability and must be prepared to modify the operation to meet the indications as presented after the abdomen is opened.

Dr. Ferguson's question has been partially answered in my reply to Dr. Porter. As stated in the paper, Boston's series included 126 cases, of which all but four were of the ascitic variety, and we were not able to find other reports in the short time intervening between the date at which the case had been sufficiently observed to justify a report and the date of this meeting.

EMBRYO ABDOMINAL SURGEONS WITH INADEQUATE PREPARATION AND KNOWLEDGE.

BY

J. H. CARSTENS, M. D.,

Detroit.

WHEN a medical student hears of a thousand dollar fee received by the surgeon for an operation requiring only ten or fifteen minutes, he makes up his mind that he will be an abdominal surgeon.

If he is, or becomes a senior and knows all about anatomy, and then attends the clinics and sees the professor do these difficult and complicated operations with great ease, in a short time he becomes still more impressed, and is convinced that he is cut out for an abdominal surgeon. He does not know anything about the trials of the work, the study, the practice on the cadaver and the lower animals which the professor has done. All he knows is what he sees immediately before his eyes, and then the story of the big fees. Hence, when he graduates, without further preparation, he goes out and operates whenever he can. His facilities are generally poor, the environment worse, and the technic beyond description. Some patients recover, some die, but he keeps right at it. It is wonderful how many diseased ovaries and inflamed appendices a young doctor finds. Every painful monthly flow indicates a diseased ovary which must be promptly removed; every belly-ache is appendicitis. His diagnostic abilities have not been developed. Careful differential diagnosis he does not need to make. The professor told him, pain in a certain region is indicative of this, that, or the other, and he enters in "where angels fear to tread." That is one class of inadequately prepared abdominal surgeons.

Another class, and I think the worst, is the general practitioner who has been practising twenty or thirty years and treated very properly everything that came along, but whose surgery has been limited to fractures, dislocations and lacerated wounds of various kinds. If he is especially fortunate, he has perhaps operated for strangulated hernia. Such practitioners

also hear of the wonderful fees and little work. They perhaps take patients to a medical center where the operator receives a good fee; they make up their minds that they can do the work themselves, and they would be glad to get one-half, or one-quarter the fee received by the specialist.

Away they go to a post-graduate school and take a course, and in from four to five weeks return, full-fledged specialists. They were at the celebrated U. Y. Z. Post-Graduate School, and have seen a great number of operations—through an opera-glass, a hundred feet away from the table. They have been told how easy it is—in fact, they saw, themselves, how easy it was, and they are now ready for business, are even ready to do anything, from a suppurating kidney to an obstructed pancreatic duct. They treat smallpox and diphtheria, in fact, all contagious diseases. Their instruments are few and rusty; without proper assistants or nurses, they operate in the house, where sterilization is always imperfect.

They do just like the young surgeon first mentioned—if anything, worse. As a general rule, when a number of patients have died on their hands, and their reputation is injured, they quit, and know enough to put the responsibility on somebody else.

These are the principal types of embryo surgeons we meet, and serve to illustrate the point I wish to make. If you called the attention of these men to the errors they make, they'd immediately say: "Why, you made mistakes when you started; we've got to learn just as you did." Now this is true. We did make mistakes when we developed abdominal surgery. We were blazing a new path; nothing was known, figuratively speaking, of the conditions—we had to feel our way along. But we were careful. We operated only on those cases where every other means had failed. In all our writings of twenty or twenty-five years ago, every one reiterated the need of careful diagnosis, trial of all other means before resorting to surgery. In the beginning we naturally made mistakes, but we worked carefully and cautiously, and slowly, and called attention to our errors, and learned from one another how to avoid these in the future, and gradually the path became clearer, and broader, and thus, in the course of time, we got more courage, we were more able to make a diagnosis, we could operate with less danger to the patient, and we more and more cleared up all the moot points in the diagnosis of the cases and technic of operations.

Simply because we made mistakes to show others the way, simply because we cleared the underbrush and made a road possible, is not to say that every Tom, Dick and Harry should come along and make those same mistakes, because we made them. All of our mistakes are placed on record, and we have warned our successors of the pitfalls. Moreover, every one of us will always be perfectly glad to help any young man, for that matter any old man, how to do abdominal surgery or any other kind of surgery, if they will only be willing to take the time to undertake it, as we did, step by step, and little by little, mastering one point after another.

In order to become a surgeon, and especially an abdominal surgeon, it seems to me that it is absolutely necessary that the young doctor should take a special course after graduating, not by looking at operations, but by helping, and doing operations himself. He must enter a hospital, and stay there for at least two years. The first year should be devoted to the laboratory, study of internal medicine, giving of anesthetics, serving with the ambulance, and seeing, perhaps, operations, close by. The second year he should assist at the operations of a good many different surgeons, so as to learn variations of technic, and also should do operations whenever possible, under the immediate supervision and direction of the surgeons. He should operate on cadavers and the lower animals. By this means he will, in course of a year, see various kinds of surgery, divers types of surgical dexterity, and will also acquire the power of working promptly and quickly himself. Then he should be in private practice for five to ten years and do some surgery.

On another occasion I have called attention to the fact that it does not pay the general practitioner, as the instruments and equipment are expensive, and people will pay him only a very small fee, and the few cases he may have in a year will hardly make him even financially. On still another occasion I have shown that the rich specialist is not as rich as he appears to be.

On different occasions I have called attention to the necessity of specialists to investigate a particular group of diseases, to clear up the various facts of etiology, diagnosis and treatment. The general practitioner, by this knowledge furnished him by the specialists, would have his usefulness increased, his earning capacity augmented, and his standing in the community raised. Thus the specialists after solving the disputed questions, have

returned into the general practice of medicine the knowledge acquired in their special field.

Although there are, in every department, special complicated difficult cases which it is necessary for the specialist alone to treat, still the general practice of medicine has profited by the specialist. This is particularly true of surgery. A great deal more surgery can be done by the general practitioners than they formerly could do, but there is a limit to this, and some surgery requires special training. It cannot be read up in a text-book or tested in the crucible. It must be based on actual experience by the attending physician.

It seems to me that in every large center, say the county seat, there should be a hospital equipped with a surgeon, or surgeons, who have been prepared for their work by a thorough course of hospital training; and it seems to me further that they should limit their practice to surgery, and not compete with their colleagues in other fields of medicine. It also seems to me that state boards should consider this question, and perhaps issue a special license to those who desire to practise special lines of surgery. In conclusion I would say:

1. Abdominal surgery by embryo surgeons should be prohibited.

2. Thorough preparation in a proper hospital, as assistant for one year, should be the minimum requirement.

3. Those who wish to practise abdominal surgery should furnish evidence of qualification.

4. Nothing contained in this paper should prevent any general practitioner from doing abdominal surgery in an emergency.

DISCUSSION.

DR. ROBERT T. MORRIS, New York.—This is not a question that can be settled by legislation, so long as we are unable to do more than we have done with osteopathy; and, furthermore, this is a question which belongs to men who have graduated regularly. There is a great moral law or moral question involved here. The moral question is this: who shall be allowed to operate, not according to the law of the legislature, but according to the unwritten law recognized in the community? It seems to me we may say this, that any young man who has given himself opportunities of the proper sort to begin practice, may begin with surgery, but he must bend all of his energies in the direction toward surgery alone, with the idea of giving up all general practice, so far as possible, and as rapidly as he can concentrating his efforts entirely on surgery. If a man starts out with

a good equipment, and with the idea of gradually doing nothing but surgical work, it seems to me he has a right to do so. At the beginning of his surgical work he may lose 15 per cent. of his gallstone cases. This percentage will gradually drop down to 10 or 5 per cent. and he may finally keep his death rate within 2 per cent. in his gallstone cases alone, for instance.

As to the second class mentioned by Dr. Carstens—namely, the general practitioner who is the occasional operator, I think it is immoral at the present time for the general practitioner to operate, if competent surgical services are at hand, for the reason that he can do much better by devoting himself to new and important subjects within the range of internal medicine. Some medical men have a feeling that they cannot maintain their dignity unless they do an operation occasionally, but this is a false conception of the meaning of the word "dignity," and the people in the community will accord the proper place to the man who devotes his time to becoming a reliable and accurate diagnostician or therapeutist.

If in gallstone surgery the beginner loses 15 per cent. of his cases, then the general practitioner who is doing a little of everything must lose a percentage much larger than he should. It must be so in the very nature of things. If competent surgical services are not to be obtained, then of course the general practitioner must do everything that he can.

In regard to the men who have taken a post-graduate course of study and who practise surgery after such a short course, I will say that I am in close contact with a school that deals with this class of men, and I wish to present another side of this question. A great many men have come to New York to take a post-graduate course in surgery. Some of them have said to me, "I did not realize the responsibility I was assuming in my practice in my small town, but now I see what surgery means, and I shall not do any more of it." That has been the result in many cases of men who have done a good deal of surgery. They began with accident surgery, broken legs, gunshot wounds, and various accidental injuries, and gradually have drifted over into pathological surgery where the surgeon is the aggressor; but if the general practitioner is to become the aggressor in pathological surgery we have an entirely different field for consideration, a field which requires long and tedious training. I am very glad to report that so many men have said they have decided not to do surgery after seeing what it means. On the other hand, some men come to New York year after year, and see various surgeons at work. It gives them more and more information. In a law school one must teach the principles of law, no matter what the lawyer does with his clients; so, in any medical school which has high ideals, and I hope all of the post-graduate schools have high ideals, members a e taught principles, separate from the responsibility devolving upon them in undertaking surgery. I have in mind a man who came into one of my

clinics and said to me while I was operating, "why don't you use silk?" He said he had just come from Philadelphia and saw Joe Price operate, who uses silk, and he said I ought to use it. Silk does not slip. He described to me the way I should use it, and said, by the way, Dr. Price is a great operator. He has operated on more than one hundred cases of pus tubes without losing a single one. He said there is a lot of this work in my town, a railroad town, and I am going to do it. It is easy, and it is good work. I am going to take it up.

Some two or three years afterward I saw him again and asked him what he was doing in pelvic surgery, and he replied, Oh! I am interested now in pediatrics. I said to him, the last time I saw you you were going to do abdominal surgery, take out pus tubes, etc., and he replied, "Joe Price is a faker. He never operated on one hundred cases of pus tubes, without a death. He must have selected his cases." (Laughter.) He then described the first case of pus tubes that he operated on, saying that no man could have separated the adhesions, and he had to give it up. In operating on his next case he said he went through the bowel and the patient had a fistula and a hernia, and these things worried him so much that he was sorry he undertook to do surgery. Here was a man, you see, who started in to do abdominal surgery, who said that Dr. Price was a faker, and yet at the end of two or three years he was doing pediatric work and is still doing it.

DR. C. C. FREDERICK, Buffalo.—I have always felt that there ought to be something done to limit or prevent so much unskilful operating. All of us see the ill results of imperfect operating, but, as Dr Morris has said, I do not suppose it can ever be regulated by legislation. The only thing I suppose we can do is to lend our influence to inculcating a higher sense of moral responsibility on the part of the men who embark in occasional surgery.

I agree with Dr. Morris in that, if a man starts out who has been duly qualified, and has had sufficient practical experience as an assistant with a competent operator to devote himself to surgical work, he has a right to undertake it, and although he is going to have a larger percentage of mortality in the early stages of his career as operating surgeon than do the men of larger experience, yet he will reduce that mortality very materially with increased experience. Of course, that goes without saying. I do think that the man who does general practice, who does everything and has an occasional case for operation among his clientèle, and who, because he sees other men who are operating all the time go through with these cases successfully and apparently with ease, or without discomfort, thinks he should take them, let the results be what they may, I say I think such a man should be discouraged from undertaking these operations.

About three weeks ago I was just getting through with my morning's work when a telephone message came from a city twenty-five miles from Buffalo, wanting me to come post-haste

to the hospital there. I did not know what for. When I reached the place they said the case was a very urgent one, that it was a case of life and death. I found a man, who was a general practitioner, a very amiable fellow, for whom I have done a good deal of abdominal surgery. He had sent me from fifteen to twenty-five or thirty cases during the last five or ten years. He had as a patient a young woman, twenty-five years of age, who had an abdominal growth. He made a diagnosis of fibroid tumor of the uterus, and thought he would take it out himself. He opened her abdomen and discovered a sarcoma of the left ovary, and you know what adhesions they form to the intestines, peritoneum, and everywhere, and when you go to break them up how they bleed! Well, when he got down to the tumor she began to bleed and bleed so that the hemorrhage obscured the field of operation He packed in four or five towels, then took three or four silkworm-gut sutures and inserted them, put on a tight abdominal bandage, put the woman to bed, and telephoned for me. I removed the sarcoma of the ovary and she made a good recovery. The doctor said to me, "so help me God, I will never open another abdomen." Fortunately, some of these cases recover when operated on by inexperienced men and sometimes they get through only by the skin of their teeth. The thing we must do, it seems to me, is by precept and example, and in every way we possibly can, raise the sense of moral responsibility upon the part of men who do not devote themselves to surgery, but who simply operate upon an occasional patient.

DR. H. W. LONGYEAR, Detroit.—In this day, when we are turning out physicians by the wholesale all over the country, is it any wonder that we are seeing sad abdominal work done by them? There are no doubt many who are trying to operate without due and careful preparation; but I think these men are stimulated and encouraged in this work largely by the very men who teach them. For instance, in our city of Detroit, we have a large general hospital, in which, for the purpose of filling this hospital, any physician in good standing is allowed to bring any kind of patient there and do any kind of operation he sees fit. I think that is wrong. In the eyes of the public the hospital becomes sponsor for these inexperienced doctors who, without previous training at the operating table, develop themselves at enormous cost of the lives of their confiding patients. I believe that is one very important class of practitioners that Dr. Carstens should have included in his paper. I am a member of the staff of that hospital, and Dr. Carstens is the chief of staff, and I would suggest that he begin by discouraging that kind of work as much as he can, as chief of that hospital. I think every hospital should be run in such a way as to discourage that kind of dangerous immature work.

DR. JAMES EDGAR SADLIER, Poughkeepsie.—There is one point in the paper that appeals to me, and that is this fact—namely,

that if the everyday operator would report his cases more fully than he does, he would not inculcate the idea that things are quite as easy as they are. I have in mind, for instance, an operator of large experience in genitourinary surgery, a man who has won his spurs well and honestly, who brought out some time ago a report of over one hundred consecutive prostatectomies, without a death. This was a magnificent report, but most of us who were familiar with his former surgical work knew how he developed gradually to the point where he could do one hundred consecutive operations of that character without a death—knew that this conveyed a wrong impression. When I was doing, a long distance from my home, a secondary perineorrhaphy for a physician of that community, he startled me by suggesting that he had a case of enlarged prostate, and expected to operate upon the patient the next day. I was there doing a perineorrhaphy as I have remarked. He performed the prostatectomy, or at least attempted to do it, and perhaps it is needless to say that the paitent died on account of hemorrhage before he was removed from the operating table. The point I wish to emphasize is that the experienced operator is doing harm in reporting his magnificent series of successful results, without giving the other side, that is to say, the failures.

I have noticed particularly that the man who limits himself to one line of work, we will say to family practice, who does not do surgery, is the man who usually stands solid with the people of that community, and they rely upon him every time.

DR. ALEXANDER HUGH FERGUSON, Chicago.—I have paid a good deal of attention to the embryo surgeon. I have two sons who are studying medicine, and they must be embryonic before they become full-fledged surgeons. Every living surgeon to-day was at one time an embryonic surgeon. They will always be with us. We must treat them properly. The former methods of dealing with them are past and gone. Our present methods are inefficient. It is for us who do surgery to outline the proper method of developing these embryonic surgeons to be equal to treat emergency work wherever it may be. We see evidences of the proper training of young surgeons throughout this country, imitating, more or less, Great Britian and Germany; and the more we imitate them in some particulars, the better we will be able to make a clear distinction between the surgeon and the internist, which, of course, will be better for humanity. Let the public know who the surgeon is and who the physician is, and who the general practitioners are. How are we to accomplish this?

The standards of medical education should not license a man to operate until he is properly qualified to do so. We should do as they do in Great Britian, make a difference between a licentiate and one qualified to do surgery. We must teach a licentiate in our hospitals by precept and example, and, finally, examinations should be held, and a certificate given that he is qualified to do surgery. This must be endorsed by the best men in the country.

It should be known that the surgical licentiate has had the facilities and opportunities and qualifications that create a first-class surgeon. This is the only way to develop embryonic surgeons. This idea of raving against the embryonic surgeon is all rot. We must educate him. A recent graduate wanted to do a hernia operation. I said to him, "Did you ever do one?" "No." I said, "First of all do it on a cadaver. Then let me quiz you, and I will stand over you and see whether or not you make any mistakes in operating on that patient." I did so in several of his operations and now he needs no consultant in the operating-room on hernia.

The surgeons of this country have been too selfish in this regard. How many hospitals are open to the licentiate or the embryonic surgeon? How many able surgeons will take these embryonic surgeons in and guide them in their embryonic work and see that they do no harm? Every practitioner ought to be allowed the privilege of entering any hospital with any patient, rich or poor, that he has a license to treat. The by-laws should be modified to meet such a condition. Then it is up to the men who are connected with these institutions to guard the reputation of the hospitals, and at the same time teach these men to do surgical work safely and well. It is one of my firm convictions that no operation should be performed in any hospital, without a consultation with, and the presence of, one of the surgeons on the staff of the hospital.

DR. ALBERT GOLDSPOHN, Chicago.—I think with the author of the paper that the law can do some good. If the law which is created by a higher authority than the individual says that so and so shall be the standard, it is most likely for good; but it cannot govern and control every individual case.

This whole subject brings to my mind what I have felt very keenly is a mistake in regard to specialism in medicine, or in the choice of a specialty. The teachers of medicine in the various medical schools permit their pupils when they pass out, or even before they graduate, perhaps before they are half through with their course, to look around like merchants, and see what pays the best, what makes the least labor, and what is the most convenient line of practice, then allow them to select their specialty from such motives. Their teachers should teach them that at this early period of their career they have no eyes and have no right to see in making such a choice. Their business is to become general practitioners, to learn in a practical way every regular affection or disorder that exists, not learn it simply from books, but to do enough of general work to get a practical familiarity with the whole domain of medicine. The thing in which a doctor is more efficient will grow on him, and the other things for which he shows less efficiency will fall by the way and become less and less with him. That is the way I took up gynecology as a specialty—not as a matter of choice at all, but as a matter of fate.

What is the advantage of such specializing by fate or natural selection? A man will not be discovering in a woman's pelvis what belongs to her stomach. The internist will not be finding ulcer of the stomach and carcinoma when the trouble is located in her sexual organs. These mistakes are not only made by the lower ranks of practitioners, but sometimes by the leading practitioners of the country. For instance: a leading internist in Chicago, a former president of the American Medical Association, who said that men were finding too much in their respective specialties, such as gynecologists, oculists, and some other ists, committed the following error in diagnosis: a young married lawyer confessed to me that he had infected his wife with gonorrhea, the treatment for which was ineffectual in the hands of this internist, who was wholly engrossed with her referred stomach symptoms. The woman felt no better and she finally came into my hands. That woman was treated and cured of her pelvic ailments by medical means only, and her dyspepsia vanished without special effort, whereas she had been treated for ulcer of the stomach, for which a surgical operation was proposed, I believe.

Another professor of internal medicine, a man who has had three years of post-graduate study abroad and had gained very commendable knowledge as a pathologist, sent to me a woman whom he said had incipient cancer of the stomach. He said, "I think this is a case in which the cancer can be extirpated, and I therefore send her to you early. There are a number of cardinal conditions in the laboratory examinations of the stomach which are wanting, but I think that is what is the matter with her." I never think of cutting any woman without looking her all over, from the top of her head to her pelvic organs. This woman had her pelvis full of tumors. She had a displaced uterus, an inflamed appendix, and her dyspepsia was due to those conditions, as experience thereafter demonstrated; yet this otherwise good man, to whom I would go if I were sick, did not examine that woman's pelvis at all. He probably did not think of it.

Such mistakes are the results of specialists, who have never been general practitioners, who know a great deal in their own lines, but do not know very much in other directions. Hence, the mistakes they make. It is not possible for a specialist to be a credit unless he has a good knowledge of general medicine. Therefore, in talking to post-graduate men, the specialist should bear in mind they are liable to these mistakes. The gynecologist who is liable to find too much in the pelvis should examine the eye and go downward, while the neurologist should begin in the pelvis, and work upward, in arriving at a correct diagnosis.

DR. E. GUSTAV ZINKE, Cincinnati.—I cannot afford to let this opportunity pass without making a few remarks; also to thank Dr. Carstens for his paper in which every point is well taken. Do not forget that within a few weeks we will celebrate the one hundredth anniversary of abdominal surgery. The man

who made the first abdominal section for the removal of an ovarian cyst was put down as a liar, as a prevaricator, and as long as he lived was denounced in unmeasured terms by the profession in this country and abroad. For a great many years thereafter the surgeon who had the courage to venture to open the abdomen of a living being was pursued by nearly all of his colleagues, physicians and surgeons alike.

You are all familiar with the history of ovariotomy. The abdominal surgery and gynecology of to-day, with the many marvelously successful operations, is naught but the result secured by a comparatively few brave men who dared to follow the footsteps of Ephraim McDowell. They were the pioneers; and in the days of the pioneers every operator was a novice in this field of surgery. He had no teacher. He was, therefore, justified in beginning the work by himself. But all this has now changed. Operators in this field have become numerous the world over, and he who desires to do abdominal and gynecological work can perfect himself in these specialities by assisting the masters in the art long enough to acquire necessary knowledge and skill before they begin to practise independently and act as principals. To-day no man has a right to perform so-called capital operations unless he has served as an assistant in hundreds of life-saving operations, thus qualifing himself for the responsible and difficult labor.

We are to-day suffering from an imperfect system of medical education. Take my own case: while still battling with the rudimentary elements of the English language, a kind hearted and generous homeopathist asked me to "study medicine." He told me it was foolishness on my part to waste time in obtaining a position as teacher in the public schools. I said: "Doctor, I am not sufficiently prepared to enter upon the study of medicine." Laughing he replied: "Sure you are. One-half or perhaps seven-tenths of those who enter our medical colleges are not as well educated as you are." Informing him of my financial condition he offered to furnish me with room, light, fuel, and the library in his office, if I were willing to keep the office clean and stay there in his absence. I made my living then giving lessons in German to private pupils.

The doctor's proposition was so unexpected that I asked the privilege of consulting some friends. Among them was a lady, a school-teacher, my senior by eleven years, a good staunch Presbyterian, a lady of culture, refinement and experience, whose advice at different times had been of advantage to me. She said: "Dr. Jones has made you a very good offer, and you ought to accept it. The only thing I dislike about it is that he is a homeopath. But you can read anatomy, chemistry and physiology with him and when you come to read materia medica you will, probably, be able to judge for yourself what school to select." I thereupon ventured upon the study of medicine in the little town of Girard, Illinois. After reading six months with Dr.

Jones, I became a pupil of Dr. J. R. Mitchell, a graduate of Rush Medical College, and remained with him six months. I selected the so-called "Old-school" system, went to Cincinnati and was graduated from the Medical College of Ohio two years later, 1875. But I always thought, and now I know it to be true, that my preliminary education was deficient. No man was more surprised than I when my name was among those candidates for graduation who had successfully passed their examination. The following year I was made assistant to the chair of ophthalmology and otology in my Alma Mater. Besides attending the eye and ear clinic, I assisted, alternately, in the histological, pathological, and chemical laboratories. I also prosected one year for the anatomist, Professor Conner. In this way I sought to make up for my deficiencies and prepare myself for what, in my judgment, a good physician and surgeon should be.

One of the first operations I performed was a double cataract extraction upon a woman eighty-six years of age, and, as luck would have it, both eyes were saved. This really made me feel as though I "was somebody." Nevertheless, I felt that the eye and ear was not the field for me. Cincinnati was then well provided with able and fashionable oculists. Having a taste for surgery, I assisted Langdon Longworth in the genito-urinary and dermatological clinic. Later I became the assistant to the chair of obstetrics and gynecology and served in that capacity for twelve years. In 1891, after spending sixteen years in general practice and acting as assistant to others in the various departments of the College, especially in obstetrics, gynecology, and abdominal surgery, I went to Europe, visiting France, Austria, Germany, and England. Three months alone were spent with Lawson Tait. Upon my return home I had the hardihood to venture upon the field of obstetrics, gynecology, and abdominal surgery. It will be seen that I served my apprenticeship well. I did it on the expenditure of my own time and money. I asked no favors. I simply worked until I thought my time had come to play the rôle of principal.

And so, as I have said, the fault lies in our system of medical education. Men have been and still are induced to study medicine who are scarcely able to follow the course of instructions given. Men have been and are still graduated who are, in reality, but poorly prepared for practice. And then, and what is worse than everything else, many of these poorly equipped men attempt to do things for which they are least fitted, thus bringing misfortune to themselves and disgrace upon the profession. On the other hand, it occasionally happens that he who early realizes his shortcomings may obtain a place in the front rank of the profession, while another, well equipped in the beginning, is a complete failure in the end, because of indifference and lack of proper ambition. It is not only so in the practice of medicine. We find the same difficulties in all branches of the various sciences and industries.

When I was a boy and began to see things, I noticed that the man who became a shoemaker had to serve an apprenticeship for a number of years and perform certain work to make himself a journeyman, and after that he had to do special kinds of work before he was acknowledged a master of his craft. And so it was with the carpenter, the tailor, the butcher, and every other calling. We graduate young men to-day. We teach them as best we can. They see with what ease and success we do difficult operations and they are led to believe they themselves can perform these operations. We have inculcated that impression and, more or less, we are responsible for it. A system should be established in which no man has the right to perform major operations unless he has been properly trained for them. This is the prevailing system in Germany. It is so in England, in France, and in Italy. The skilful and experienced operators, men famous and renowned, are men raised and trained systematically, climbing the ladder of perfection and fame step by step. We are gradually coming to this in this country.

It is said that McDowell, the father of ovariotomy, was not a graduate. It is true he had no diploma when he performed his first ovariotomy; but he had one year of earnest, careful training under John Bell, of Edinburgh, then one of the greatest surgeons of England, and while Bell's pupil he had often heard the statement, when tumors were found within the abdomen upon post-mortem examinations, that *these tumors might have been removed during the patient's life if the conditions had been known.* But up to that time nobody had the courage to open the abdomen while the patient was living. It was upon the suggestion of Bell that McDowell acted while practising in the "back woods" of Kentucky. It was this that gave him the courage to operate, in the face of the fact that, unless he was successful in the operation, he was in danger of being mobbed. It is well known that while he was doing his first ovariotomy, the patient being Mrs. Crawford, a mob had formed outside of his office, and, had she died during or soon after the operation, God only knows what would have become of Ephraim McDowell and ovariotomy. There was a time when men were justified in entering upon operative work without special preparation. They had no opportunity to learn from others. They were obliged to take chances. To-day no such excuse exists. The opportunities to learn are now ample (applause).

DR. CARSTENS (closing the discussion).—I do not see that there is much to say in closing, because the various speakers have so generally agreed with what I said in my paper. Many of the points brought out in the discussion were touched on in the paper. There are only a few variations.

Dr. Morris spoke about the effect of the post-graduate schools being controlled, and so it undoubtedly is in some cases, but it is not always so. Practitioners go to a post-graduate school and see some operations performed, and return home thinking and

believing that they can do them just as well. Now comes the other side; we show them how nice and easy and slick it is to do a certain operation. We can tell them that we have had so and so many cases, without a death. What is the object of that? Why do we do that? I do not know that any of us is going around blowing about what we do. That is not what we are there for. It is our business to teach general practitioners that it is a serious thing to let cases of appendicitis alone, and treat them by applications of ice and by compresses, but that if we can take these cases and operate on them early, we can save from ninety to ninety-nine cases out of a hundred.

We have had to teach and reteach them for years and years that pus tubes ought to be removed. If we are going to restore patients to health, we must try and show that such operations are *not very dangerous*. At first when we were learning, the operation was dangerous, the mortality was great, then they would not believe in operations. They pooh-poohed it, but it has been gradually shown that in this class of cases operations can be done with very little danger. We are getting the general practitioners all over this country in touch with the idea that these operations are the proper methods of treatment in some of these cases. You can readily see that when we operate before a group of practitioners, and perform operations in an apparently easy manner, they are likely to say that such surgical work is very easy; that such operations are easy of performance. There is nothing to it in their judgment, and they rush in where others go with fear and trembling, and very cautiously. It is a difficult thing to say what we shall do. All of us talk about these things, and we do *not* neglect to call attention to the dangers of operation; all of us report any number of cases and show why patients die, or point out the causes of death, or how they can be avoided in the future. But young practitioners do not see these things as we do. They see a big fee, an easy time, and very little work.

What Dr. Longyear says about the general hospital is true, and still how are we going to change it? How are we going to put up a hospital and shut it up like a Turkish harem, and say nobody shall go in here? If a general practitioner can treat any kind of case, no matter how wrong the diagnosis, why should not a man who wants to do surgery be permitted to do the same thing? Why should we force that man out and say, you can operate in the house of the patient and do anything you please, but you cannot come here and operate on her? We have facilities in our hospitals, and we have experienced assistants, and operations should only be done by men who have had experience in doing surgical work. Every young man ought to have a chance to go into a hospital and operate, if he has prepared himself to do so. We have taught a great many men how to become abdominal surgeons. We think we have educated house physicians in the right kind of way. We do that at our

hospitals. Some of them have assisted us in hundreds and hundreds of operations. They can do abdominal surgery, and they are the ones to do it. Somebody has got to do it after we are dead and gone. But to allow men who are just fresh from our medical colleges to undertake this work, is what we object to. We have got to deal with complicated cases now and then.

If I had a papilloma on my vocal cords, do you suppose I would let any young general practitioner that came along take it out? I should say not. If any of you had a cataract you would not want a general surgeon to remove it, because it is a difficult and very delicate operation. You would want some man who is a specialist in diseases of the eye and who is a skilful operator. And so it is with abdominal surgery. Men can be taught to do a certain amount of that kind of surgery. They can be taught to do a certain amount of eye, nose and throat work, but there are limitations, and it seems to me that we ought to have some standard of qualifications. The man who is going to do this work ought to be able to show and demonstrate that he has had the proper experience as an assistant and that he is fairly well qualified. He should not rush in to do work with which he is unfamiliar or for which he has no ability.

WHEN SHALL WE OPERATE FOR RUPTURED ECTOPIC GESTATION?

BY
RALEIGH R. HUGGINS, M. D.,
Pittsburg.

THE habit of the writer has always been to delay operation for a few hours in ruptured tubal pregnancy when all signs pointed toward a temporary cessation of the hemorrhage. In the meantime preparation is made for operation. Morphia is administered to quiet the patient and gentle stimulation begun. If the surroundings prohibit operation at the home of the patient, she is removed to the hospital with the greatest possible care in transportation. If improvement continues there is no great hurry; but operation has usually been done, not later than twelve to eighteen hours after the onset of serious symptoms. In this class of cases recurrence of the hemorrhage has not been noted in this length of time.

During operation salines and diffusable stimulants are given intravenously and under the skin. The severe hemorrhage and the morphia previously administered, so relax the patient that little ether is necessary, and its administration for a few minutes only makes it an additional stimulant of great value. The condition of the patient under this treatment is better when leaving the operating room than before, and the mortality in this class of cases has been nil. There can be no doubt that in the vast majority of instances the hemorrhage has ceased temporarily when the consultant is called. The length of time which has transpired since the hemorrhage began varies. The more serious the symptoms, the sooner the consultant is likely to be called. The attending physician will usually say that when he first saw the patient she was in a state of collapse, but that now, which is several hours later, there is some improvement. The pulse is slightly better and the air hunger has disappeared. A pulse which was hardly perceptible when he first saw the patient is now easily counted and is of better volume. Reaction has already begun. The formation of a clot in the pelvis has plugged the bleeding point and the force of the blood stream is now so

low that for a time at least, there is little danger of recurring hemorrhage.

Who can say, and by what means are we to determine, how long this period of apparent rescue from death by nature's efforts may continue? Doubtless in many cases hemorrhage does not recur, but the experience of the writer in the study of his own cases and many that are reported in literature, convince him that some further advance must be made in diagnostic skill before it can be said that hemorrhage, severe, and even fatal, may not recur in a given case. The report of two cases where operation was postponed is the excuse for a paper upon this subject at the present time.

CASE I.—This patient was not seen for twelve hours after the onset of symptoms which, judging from the history and condition of the patient, had been most grave in character, and she was still in a critical condition; pulse rate of 160 to 170; hemoglobin, 30. The surroundings absolutely prohibited operation in her home and the only hope of recovery lay in a change of environment. She was removed to the hospital without apparent harm. Thinking this was a case "par excellence" for delay in operation, if it were a safe procedure, this patient was kept under constant personal observation for the next eighteen hours. During this time there was a gradual improvement and under gentle stimulation the pulse rate had improved to 130. The patient was not allowed to stir, and was kept absolutely quiet in every way. At the end of this time, when reaction seemed to be progressing nicely, all the symptoms of recurring hemorrhage ensued. The pulse became almost imperceptible, there was great restlessness and the patient gasped for air. She was at once taken to the operating room. The pelvis and abdomen were filled with clots and fluid from the first hemorrhage and fresh blood oozed from a cavity in the tube which had ruptured, one inch from the uterus. This patient made a good recovery.

CASE II.—A short time later a patient was brought into the hospital who had taken suddenly sick eighteen hours before. Careful study of the history and symptoms present, when admitted, made a diagnosis of ruptured tubal pregnancy certain. While the hemoglobin was quite low, 38, the pulse was found good, 120. It was evident that there had been a great improvement in her condition and that reaction had been very satisfactory indeed. The operation could have been performed at this time

with comparative safety. The desire to wait for further improvement having a firm hold on me I decided to postpone operation until resistance might be greater. The patient was placed in "cold storage" and morphia given to promote sleep and quiet. The next morning there was further improvement. In the afternoon, just forty-eight hours after the primary hemorrhage, she became suddenly worse with all the signs of recurring hemorrhage, and although immediately summoned, when I reached the hospital the patient was *in articulo mortis* and died before operation could be performed. Thus was lost a mother and is the only death in a series of forty cases of ectopic gestation, the majority of whom were operated upon in conditions when the risk was greater than it would have been in this woman when she was admitted to the hospital.

This experience teaches that in some cases at least when the increased blood pressure incident to reaction occurs hemorrhage may again ensue. The further delay in operating upon these patients was induced by a paper read by Dr. Hunter Robb. A series of experiments upon dogs led him to conclude that death seldom occurs from hemorrhage accompanying the rupture of an ectopic gestation, and that many deaths which follow operation might be avoided if a longer time elapsed after primary hemorrhage before operative measures were undertaken. He accordingly advised delay in operation for several days until there is a safe margin of resistance. Other writers have since extended this time to several weeks.

Doubtless every one has observed that nature has given to the dog a greater protection against hemorrhage than exists in the human. In doing blood counts upon dogs it is often difficult because of the rapid coagulation of the blood. The writer noting this fact, the time of the coagulation of the blood was taken in fifty dogs and found to average 3 min. 28 1/10 sec. The average time for coagulation in the human, as taken by the same instrument in fifty individuals was 6 min. 45 seconds.

Length of time required for the coagulation of the blood of fifty dogs.

No.		Coagulating time.
1.	Setter	4:30
2.	Cur	2:30
3.	Cur	2:55
4.	Fox terrier	3:00

No.		Coagulating time.
5.	B.	3:15
6.	Fox and bull	3:00
7.	White fox T.	3:45
8.	Cur	3:30
9.	B.	3:00
10.	B. Russian	3:30
11.	Cur	5:00
12.	Cur	4:00
13.	W. spaniel	3:15
14.	Cur	3:00
15.	B.	3:00
16.	B.	2:45
17.	Yellow B.	4:00
18.	Fox B.	4:00
19.	Fox B.	1:50
20.	Cur	4:00
21.	W. Spaniel	2:40
22.	Cur	3:10
23.	Cur	3:10
24.	Cur	3:10
25.	Cur	3:10
26.	Bull	3:20
27.	Bull	3:30
28.	Yellow cur	3:20
29.	Cur	4:10
30.	B.	4:15
31.	Fox	3:05
32.	Cur	2:05
33.	Cur	3:15
34.	B. terrier	1:35
35.	Cur	4:05
36.	Fox terrier	3:05
37.	W. spaniel	1:55
38.	Cur	2:10
39.	Cur	3:10
40.	Cur	5:45
41.	Fox	3:00
42.	Cur	3:30
43.	Cur	4:00
44.	W. spaniel	3:15
45.	Setter	5:00
46.	Cur	3:30
47.	Cur	4:00
48.	Fox	3:00
49.	Bull	4:00
50.	Bull	4:00

Average 3 min. 28 1/10 sec.

There is therefore considerable difference in the time of coagulation of the blood of the dog as compared to the human. There is undoubtedly greater protection against continued hemorrhage in the dog because of this rapid coagulability of the blood. Again only one of the bitches was pregnant which was operated upon by severing the uterine and ovarian vessels in Dr. Robb's series.

Experiments upon dogs by the writer show that hemorrhage thus induced is much more profuse in pregnant bitches than in the nonpregnant, and while it seems impossible to kill by dividing the uterine and ovarian vessels in the nonpregnant, death occasionally results from the procedure in the pregnant bitch. In ten experiments of this nature upon pregnant bitches one died and the loss of blood as demonstrated by the pulse rate, was much greater than in a similar number of experiments in ten nonpregnant bitches. We all know, owing to the increased blood supply of the pelvic organs during pregnancy, how profusely a small wound made in the uterus or in fact in any part of the pelvis will bleed.

Without careful consideration of the above demonstrated facts, experiments upon animals in the study of this subject are of no practical importance. It is irrelevant to compare hemorrhage from other parts of the body to that which occurs from the torn vessels of a congested pregnant tube. The amount of blood effused into the peritoneal cavity from tubal rupture or abortion, varies with each individual case and depends usually upon the portion of the tube which has been ruptured or eroded. Even in tubal abortion the amount of blood poured into the abdominal cavity is sometimes very great and may equal in amount that occurring in the most severe form of tubal rupture. A case recently operated upon by the writer eight hours after the initial hemorrhage showed the abdomen filled with blood, which had escaped from the fimbriated end of the tube. The ovum however was located within 1 inch of the uterus. The tube at this point was still unruptured and the attachment of the decidua had not been disturbed. Doubtless later, but just when would be impossible to estimate, a second hemorrhage would have occurred.

Our methods of diagnosis do not permit at present, therefore, to determine always the exact point of hemorrhage previous to operation. It is the opinion of most men that in the vast majority of cases the amount of blood thrown into the peri-

toneal cavity, either from abortion or rupture, is not sufficient to produce death at the time of the primary hemorrhage. In 5 or 6 per cent. of the cases of ruptured tubal pregnancies the hemorrhage is tremendous and the symptoms correspondingly grave. We find the patient pulseless and usually restless with the anxious look so characteristic of extreme hemorrhage. The blanched mucous membranes and deathly pallor indicate the gravity of the condition and at once suggest the diagnosis. There must always be grave doubt whether hemorrhage in the latter class of cases will cease unaided, and it is the consensus of opinion that death usually ensues in a few hours if operation is not performed. The gravity of the symptoms indicate that the hemorrhage must escape from a large vessel or from an area which is extremely vascular. The writer has seen two of this variety where immediate operation was considered necessary, and was performed with recovery.

In order to show what progress has been made in the treatment of this accident in the last forty or fifty years let us refresh our memory by referring briefly to literature of that date. Meigs in his book on "Woman and her Diseases" 1859, after a graphic description of death from hemorrhage in several cases of ectopic pregnancy says "What, alas! can we do in these cases? We could make an incision in the abdomen and clear away the coagula and serum; but who is he bold enough to do so? There is no such wise and bold surgeon, and therefore nothing remains for us but to extend all the relief within the narrow boundaries of our power and submit to the inevitable end." This quotation expresses the sentiment of the leading men of that time.

Parry, in 1876, gathered the statistics of 499 cases of ectopic gestation. Of these 336 died and 163 recovered—a mortality of 76.2 per cent.; 174 died at, or a short time following rupture, an immediate mortality of 52.8 per cent. He says: "The opinion has long prevailed that tubal pregnancies are peculiarly fatal, and there can be no doubt that it is correct—of 149 cases in which the ovum was located in that portion of the tube which does not traverse the tissues of the uterus, 145 died." It seems evident that the cases which were recognized in those days were severe in nature. Hemorrhage from tubal pregnancy is doubtless recognized more frequently now because of our improvement in the interpretation of symptoms. Thus, very mild cases are seen which formerly passed unnoticed. Parry said, "Here is an accident which may happen to any wife in the most useful

period of her existence, which good authorities have said is never cured and for which even in this age when science and art boast of such high attainments, no remedy either surgical or medical has been tried with a single success."

Lawson Tait states that he was concerned directly and indirectly in the postmortem examination of twenty-six women, who had died from hemorrhage into the peritoneal cavity from ruptured ectopic gestation. In the year 1883 this daring and brilliant operator taught us that it is possible to reduce the mortality of this terrible accident to less than 3 per cent. for, in the six succeeding years, he operated thirty-nine times with but one death.

History teaches us therefore that before the days of abdominal section many women died from this accident. A search of the literature of the present day shows that many deaths still occur. The mortality has undoubtedly been reduced from the high rate above referred to, to less than 8 per cent. and this percentage is taken from the work of many operators. Some operators report a rate of 2 per cent. and less. This great improvement in mortality shows that the results from operative treatment have been most brilliant. Also, that the greatest consideration must be extended toward all theoretical statements tending to change our views upon this important subject. In the case where hemorrhage has ceased and when reaction is taking place there is doubtless little danger of recurring hemorrhage for a few hours. The cases above reported demonstrate that when arterial tension becomes higher hemorrhage may recur. When this may happen is entirely speculative. That it does not recur in a large percentage of the cases does not justify the teaching that it will not recur in any.

Recent papers have served an important purpose, because they have emphasized the fact that the patient usually rallies from the primary hemorrhage and that it is unnecessary as a rule to operate while the patient is in extreme shock. It is undoubtedly true that in a large percentage of the cases, a few hours can be well spent in allowing a patient to react so that operation will be attended by less danger. That it can be postponed indefinitely without great risk to the patient has not been true in the experience of the writer. It is unnecessary to dwell on the dangers of peritonitis, intestinal obstruction and prolonged convalescence which will result occasionally if operation is indefinitely postponed.

In the graver forms where there is evidence of continued hemorrhage immediate operation should be performed. Additional shock caused by operation should not be considered, for here, as in hemorrhage in any other part of the body, the only treatment that can be advised is to ligate the bleeding vessel. An opening into the abdominal cavity is a small matter and the result will depend entirely upon the method of this procedure. There is no time for deliberation or precise and careful technic in the performance of this operation. The limbs of the patient should be firmly bandaged. Saline transfusion is begun, while the ether is being administered. Light ether anesthesia for fifteen or twenty minutes is a good stimulant. It is unnecessary to stand the patient on her head by using the extreme Trendelenburg position, thus increasing shock by pressure against the diaphragm and a lagging heart.

Thirty seconds only are required to open the abdomen. There are no vessels in the abdominal wall to ligate, as the tissues are blanched and free from blood. To grasp the bleeding tube and remove it requires less than five minutes. To clear the pelvis of the largest clots and close the abdomen should be done in a few minutes and the operation is complete. There is improvement in the condition of the patient while on the operating table. No harm is caused by the blood left in the abdomen, and additional shock incident to its removal has been avoided. This operation can be safely performed in the home of the patient if the surroundings are not prohibitive. Few assistants are necessary and now when good nurses are so plentiful it is a mistake to insist absolutely upon removal of the patient to a hospital. It is especially true in this operation that the more expert the operator the better will be the result. I desire to thank Dr. W. A. Nealon for his kind assistance in this work.

DISCUSSION.

DR. H. W. LONGYEAR, Detroit.—It seems to me there should be no hesitation on the part of the abdominal surgeon in expressing the same opinion that the author of this paper has done, regarding the necessity for immediate operation in cases of recent rupture of tubal pregnancy. Do not wait for shock to subside, but start the transfusion immediately, stop hemorrhage at once, and the patient gets off the table in better condition than she goes on. You do not know whether it is one of the cases that is going to recover without operation, where the hemorrhage stops of its own accord, and does not recur, or not, and the pa-

tient may die while you are trying to find out! There is only one class of cases in which I would not resort to immediate operation, and that is in cases of old rupture, without history of recent hemorrhage.

DR. HUGO O. PANTZER, Indianapolis.—Scientific and humane thought will always revolt against the application of routine practice to any condition. Standing in this class of cases, oftentimes in the presence of doubt, in a given instance where life is menaced, we cannot otherwise than decide to chance it with an operation. I heartily indorse the paper.

DR. WILLIAM. H. HUMISTON, Cleveland.—I do not believe there will be a paper read at this meeting that will do more good than this one by Dr. Huggins, especially after it has been given out from other sources that in a large majority of cases we can wait, and perhaps an operation may not be necessary. In my opinion this is a dangerous doctrine. There should be very little trouble in making a diagnosis of ruptured ectopic pregnancy. A careful taking of the history, followed with the symptoms that have come on suddenly, the condition of the patient, supplemented with a careful pelvic examination, will leave scarcely any doubt in the great majority of cases as to the conditions present, and if there be a rupture that is sufficient to give shock, one cannot tell whether that shock will be arrested or not, and I do not hesitate, nor have I hesitated, to operate upon all of these cases that come into my hands, whether they are in shock or not.

A prominent patient in Cleveland was allowed to die by waiting twenty-four hours before operating for reaction from the shock to occur. The operation was commenced after twenty-four hours, when the woman was still in shock, and she died upon the table. In this case there was twenty-four hours' loss of valuable time. If we have a ruptured bloodvessel to deal with it may not bleed all the time, but if it is any size worth mentioning the chances are the bleeding will be intermittently progressive, and the patient becomes weaker after ten to twenty-four hours than if operated at the beginning. I have operated these patients when they were pulseless, and, with submammary injections of hot saline solution and the effect of the stimulation of ether by the drop method, opening the abdomen in a few seconds. Then finding the fundus of the uterus, determined on which side the rupture was, put a clamp on the broad ligament close to the uterus, another on the broad ligament near the pelvic wall, and controlled the hemorrhage. From that moment the patient would begin to revive, and I could complete the operation in a few moments without further loss of blood. I have been favored with a *nil* mortality so far in my ectopic pregnancy work, having operated on forty patients. In my next forty cases I may lose ten, but I shall not permit these woman to die from shock and hemorrhage without operation.

I think the author of the paper brought out a very important point when he said that the condition of the dog and its vessels is not to be compared with the human. This has misled a great many to feel that these hemorrhages will be taken care of without operation. I believe that the sooner we operate upon these patients by the method I have spoken of, and which Dr. Huggins has mentioned, we will save more women than we will by waiting five or six or even twenty-four hours for a reaction to take place —that may never come.

DR. THOMAS B. NOBLE, Indianapolis.—A year ago or more, when Dr. Robb, at Chicago, presented his paper relative to this subject, in which he advocated procrastination in some cases, I had occasion at that meeting to take decided issue with him and said that it was bad teaching, and that women would die as the result of such teaching. Now, here the subject is brought up again, and we have a report of just such a case, one in which the operator has been influenced to procrastinate at a time when the case seemed urgent, and he lost the mother, breaking that which was otherwise a clean record. I feel that it will be a long time before the mothers of this country will be free from the baneful influence of such teaching. It is wrong.

I wish to subscribe *in toto* to the advice of the author and to affirm again that it will have to be taught and retaught that these cases should be operated on immediately; by which I mean, as soon as the diagnosis is made, preparation should be immediately instituted to do a quick and proper operation. Some operators will have a mortality along that line greater than others, because we will find some men occupying twice or three times as much time in doing the same work as others. These cases will not bear long, tedious tinkering, or extra careful surgery, but they will respond to direct, prompt, quick work.

DR. A. B. MILLER, Syracuse.—A year ago when this subject was before the Association, I gave the experience which I had in treating this class of cases. I do not wish to take up the time of the Association to reiterate that experience, but I do wish to commend all that is in the paper. The sentiments were strong in our Association a year ago that we should procrastinate in the treatment of this class of cases. I was induced for the first time to start the discussion along those lines, and gave it as my opinion that this was an instance where perhaps we felt we were yielding to unsound judgment by interfering at once. I believe, ordinarily, we should be actuated by judgment, and with our judgment we should be careful in drawing our conclusions. I feel strongly regarding this subject in favor of operating immediately, as my success in thus treating this class of cases has been fortunate. While it has not been equal to that of our president, yet in over one hundred cases I have had only a mortality of 3 per cent., and this from complications which would induce death independently of the ectopic gestation.

When it comes to the technic and method of operating, Dr. Huggins has said in his paper all I can say, and I wish to indorse what he has said *in toto*, for I believe he is resorting to the proper method. Feeling, possibly, I was a little strong in my conclusions regarding my attitude, several cases that I have seen this year, and one in particular to which I wish to call your attention, where I was called in consultation with an abdominal surgeon, have convinced me of the position I have taken. One woman was in a hospital. The patient was *in extremis*, but when I saw her she was much better than she was three-quarters of an hour before. Of course the surgeon had handicapped me by his statement that she was better than she was three-quarters of an hour before, and that procrastination might give the patient possibly time to react with the salines, rest, and the like, and that the morning for the operation might offer a better opportunity than an hour or two later. Instead of operating in the morning or an hour or two later, another surgeon was called in consultation. He found the patient *in extremis*, refused to operate, and she died before midnight, so no operation was done.

I have seen something like this occur in several instances. I believe I would have slept better that night if I had subjected that woman to operation when I saw her. But I certainly feel with the slight experience which I have had in dealing with these cases—and I note what the author said in regard to treating these cases in the home—that it is unnecessary for these patients to be removed to a hospital; that they ought not to be put in an ambulance and carried too long a distance; that you can get to them hurriedly with a nurse and trained assistants, so that the work can be done at the home, and if nature has been kind enough to produce a clot which has arrested the hemorrhage temporarily, the patient is in a much better condition in the home than she would be if she were removed to a hospital. Of course, there are places in which we would not think of operating, but in the majority of the homes we go into the operation can be done.

I have been inclined to look upon this as sidewalk surgery. I have had the feeling that if I was permitted to carry out my conviction in surgery of this class of cases (which I would not do) I would not hesitate to take out a jack-knife with which to open the abdomen, pick up the bleeding vessel and put a shoe-string around it, rather than run the risk of leaving the woman go to a place where all the nicety of technic can be accomplished.

DR. JOHN YOUNG BROWN, St. Louis.—Speaking from the standpoint of the general surgeon, it is exceedingly delightful to hear such a paper and such a discussion as we have heard here this afternoon. During the last six years I have been in a position where I have come in daily contact with cases of acute intraabdominal hemorrhage, as seen in gunshot wounds of the liver, of the mesentery, of the spleen, and in quite a large number of cases of ruptured ectopic pregnancy. I have never been able

to figure out from this experience why it is that gynecologists should differ as to the proper time to treat such conditions. With the modern methods we have to combat shock, and particularly the use of salt solution by hypodermoclysis, and by the method which Andrews has accentuated in the treatment of gunshot wounds, where the hemorrhage is severe—namely, buttonholing the upper abdomen as soon as it is opened and starting the saline solution to flow immediately to combat shock, a majority of these cases can be saved by prompt action. I see no more reason why we should wait to see what is to turn up in a case of ruptured ectopic pregnancy than we should wait to see the results of a serious hemorrhage of the mesentery or of the liver. In such a case we would endeavor to stop the bleeding. I would question our judgment and wisdom in waiting in these cases. In any given case I do not know whether the woman is going to get better—whether she will recover from shock or go on to her death.

This is one of the most interesting and one of the most important subjects we have had brought before us, and I believe it is going to have an important bearing on the surgery of this condition.

DR. ALBERT GOLDSPOHN, Chicago.—I did not intend to speak on this subject, but since I have been called upon to do so I will say a few words. On the whole I indorse the sentiments of the author of this paper, but I would not indorse the use of a jack-knife and a shoestring in these emergency cases. Of course, in competent hands, probably in the hands of almost any man in this room, it might be safe, but it must be limited to that. I would further say, even with a complete outfit of instruments and nurses and an incompetent operator a patient would stand a better chance by being transported in an ambulance to a hospital if she can be there cared for by competent hands and facilities.

As to what has been said about the possibilities of recurrence of bleeding after it has once been temporarily stopped: how many men of large experience have seen these patients die from recurrent hemorrhage? I have seen something like eighty cases of ectopic pregnancy that I have dealt with in one way or another, and I have only known of two instances of patients who died from that affection (hemorrhage) unoperated. This shows that nature, under these very disadvantageous circumstances, undisturbed will do better than poor substitutes for surgery, where infection is almost certain to follow and bungling is pretty sure to occur on the part of the ignorant operator.

DR. C. C. FREDERICK, Buffalo.—I would not rise to discuss this subject if it had not been that Dr. Huggins asked me to do so. I am a member of the American Gynecological Society as well as of this distinguished body, and was present at the time that Dr. Hunter Robb first started a discussion, which was carried from the American Gynecological Society into the section on obstetrics

and gynecology of the American Medical Association, and which later called forth a series of papers in the American Gynecological Society, a symposium, as it were, upon this subject, in which I took part a year ago last May. This question was precipitated in Washington two years ago by Dr. Robb, in making the statement that he did not believe all cases of ruptured tubal pregnancy needed to be operated on at once. That statement was commented on at once, and later he read his paper upon severing the uterine and ovarian arteries in bitches, which led to all this discussion. I felt at the time Dr. Robb took this stand that there would be a great many deaths of women throughout the country from ectopic pregnancy. I have always felt that prompt operation was the proper course in most of these cases.

I have seen about 135 or 140 cases of ectopic pregnancy in my time. Five per cent. of them have been rapidly bleeding cases, and the other 95 per cent. were cases in which rupture had occurred, and they had recurrent bleeding sometimes for a period of two or three or four weeks, or even five or six months. I have operated on women who have had recurrent hemorrhages five or six months after the primary rupture. I have seen one case in which the hemorrhage stopped; the woman never had another rupture, and she was not operated on. I have operated on patients who had ruptured tubal pregnancies ten years before, and found the remains of the ruptured tubal pregnancies in the abdomen—lithopedions and little skeletons of fetuses, all wrapped up in a lot of adhesions, and calcareous material. So there is a class of cases which will bleed once or twice and then stop. There is a class of cases which will bleed and stop and bleed and stop, and so go on for a series of days, and weeks, and months. There is another class, the 5 per cent. class, that will start to bleed and bleed until they die. I have seen five of that class, the patients dying within twenty-four hours from the time the hemorrhage set in.

The first case I saw was in the practice of another physician, who did not fully recognize the nature of the case, and this woman bled from 7 o'clock to 12. She was operated on at once, but died in about two hours thereafter. The next case was a woman who was *in articulo mortis*. She had been having a hemorrhage from 7 o'clock until I saw her at 10 P. M. I did not operate on her.

Another case I was called out of town to see, bled all day long from early morning until 11 o'clock. I went forty miles from Buffalo, catching a late train and got there to find that there was just a little flicker of life. I had all my instruments sterilized, put salt solution under the breast, slit the abdomen open, and put a clamp on the bleeding arteries. But the woman died. And so it has been. All of the neglected cases of rapid and recurrent hemorrhages have died, and every one of the cases that I have ever seen that were operated on that had recurrent hemorrhages, with the exception of one that had intestinal obstruction which

developed four weeks after she left the hospital, have lived. Therefore, I feel like taking the position that cases of ruptured tubal pregnancy at the beginning should be operated on. If they have recurrent hemorrhages, operate on them anyway. I do believe that if there is any one thing a man should insist on, it is to stop hemorrhage in these cases, as he would anywhere else. If we have a bleeding vessel to deal with, cut down upon it, tie it, and stop the hemorrhage.

DR. M. I. ROSENTHAL, Fort Wayne.—We have present with us a general practitioner, living in Fort Wayne (Dr. E. E. Morgan), who opened the abdomen of a woman in a desperate case of ectopic pregnancy, controlled the hemorrhage, and saved his patient.

There is one thing which Dr. Humiston stated which I would like to emphasize, and that is, that in practically all these cases the moment you stop the hemorrhage the pulse begins to improve. As a negative report it is more valuable sometimes than a positive one, I am going to speak of three cases of deaths from ectopic pregnancy.

I have done several of these operations every year for the past fifteen years. The fatal cases which I am about to report had all gone on for some time after the first evidence of ectopic rupture. I make it a rule to operate as early as possible. As a result, I have also two cases of mistaken diagnosis to report.

I had the pleasure of presenting within the last year two specimens of tubal pregnancy to the local society, removed before rupture. Since I have been operating these cases early, as I have stated, I have these two cases of mistaken diagnosis to report—one of evident early pregnancy with what appeared to be hematoma in the left broad ligament. We operated upon the patient and found that the supposed hematoma was a soft fibroid tumor, which we removed without disturbing the pregnancy. The woman went to term, and was delivered of a live, healthy baby.

In the other case, more recent, I found a salpingitis complicating a small fibroid at the lower posterior pole of the cervix, which I removed. These two cases were mistaken for ectopic pregnancy. Both of them were much better for having been operated upon. In one case the fibroid would have offered obstruction to labor, and in the other case I was dealing with a leaking pus tube, presenting subnormal temperature and the ordinary evidences of ectopic pregnancy.

One case of ectopic pregnancy, that died at Kendallville, Ind., I saw after she had recurrent hemorrhage for a number of days. I quickly opened her abdomen. This, by the way, was a pregnancy in the right horn of the uterus, intramural pregnancy, the woman bleeding rapidly when I operated on her. I managed to control the hemorrhage, and promptly put her back to bed. Her pulse began to improve at once, but she died four days later from pulmonary embolism. The loss of a large amount of blood had much to do with this death.

In the second case I was summoned to operate for obstruction of the bowel. This woman had a plastic peritonitis, with the abdomen full of blood, as a result of ectopic pregnancy. She died.

A third case, I did a late operation for what appeared to be obstruction of the bowel. This women also died from plastic peritonitis. Of late I have operated on these cases as soon as I have made the diagnosis. My anesthetist has repeatedly noted that the pulse of these patients begins to improve as soon as the hemorrhage is stopped. Another important point is, that we should remove simply the large clots and close the abdomen as promptly as possible.

I was called to see a case in a neighboring city where the surroundings were unsanitary, and I found that the woman had a flickering pulse. I did not take her out of bed. I poured some iodine-ether solution over her abdomen, by way of sterilizing it. A sterile sheet was thrown over the patient and, with the assistance of the attending physician, an incision was made through the sheet and abdomen, the bleeding tube was secured and through-and-through abdominal suture made. The patient recovered promptly. She did not get over twenty drops of chloroform. She was practically moribund, but as soon as the hemorrhage was controlled and the bed elevated, her pulse returned. As I have said, lately I have operated on these cases as soon as the diagnosis was possible.

I got my entire mortality in cases of ectopic pregnancy from cases operated upon late, as I have enumerated.

DR. E. GUSTAV ZINKE, Cincinnati.—Primarily I have no desire to participate in this discussion, but knowing that our proceedings will be published and read in this country as well as abroad, we cannot afford to have this discussion closed without shedding further light upon some points which may help to elucidate some of the questions involved. It is just as wrong to say every case of ectopic gestation must be operated upon as it is to say many cases of ectopic gestation will recover without an operation. There are cases of extrauterine fetation which recover without an operation. This should not be foregotten. Most of us, perhaps, know of instances where men have proposed operation, with or without counsel. The operation being refused by the family, the patient recovered notwithstanding, and the laugh, so to speak, was on the surgeon. It is all a question of proper diagnosis in each individual case. One must understand the pathology of ectopic gestation.

Speaking merely of ruptured tubal pregnancy is not stating, by considerable, the true existing condition. In one instance we have a rupture of the tube into the peritoneal cavity; in another the rupture of the tube takes place between the layers of the broad ligament—an entirely different matter. In a third variety we have a tubal abortion, the tube remaining intact. The ovum, yonng as it is, may or may not be discharged from the

tube into the peritoneal cavity, and, whether it is or not, under certain conditions the patient may recover without an operation. Time and again cases have been reported of tubal rupture between the layers of the broad ligament, the hemorrhage having been arrested and a hematoma formed, which gradually disappeared, the patient making a spontaneous and complete recovery. Even the adhesions, which always form, have been known to disappear. The same course may be observed in some cases of so-called Saenger's peritubal hematocele, a case of tubal abortion, where the distal extremity of the tube becomes agglutinated to the pelvic floor, an the blood making its way slowly out of the ostium abdom nalis collects around the tube. A club-shaped tumor is thus formed behind the uterus; it may disappear with the patient at rest for a considerable period of time.

Here are the principal points to be determined in every case of extrauterine pregnancy: Must we operate at once? Can we afford to wait? Is spontaneous cure probable or possible? With very rare exceptions, I would operate upon every case of ectopic gestation as soon as the patient can enjoy the security obtained through antisepsis and asepsis. If the patient's condition admits of waiting, as in cases of tubal abortion (internal rupture), or in cases of tubal rupture (external rupture), with the distinct development of a hematoma or hematocele, there is no need for haste. Everything is gained by waiting until the necessary safeguards have been obtained, and by the time they have been secured we may, in some instances, find the patient so much improved that an operation is a comparatively safe procedure or, perhaps, entirely unnecessary. We speak of hematocele whenever the blood makes its way into the peritoneal cavity. We speak of hematoma when the blood makes its way between the layers of the broad ligament.

Suppose you have a ruptured tubal pregnancy—how can you tell whether the rupture of the tube took place into and between the layers of the broad ligament or into the peritoneal cavity? If the blood escapes between the layers of the broad ligament, the pains and symptoms of hemorrhage are not pronounced nor prolonged and a tumor forms to one side of the uterus, which can be reached easily by digital examination. This is a case which admits of waiting. If a rupture occurs into the free peritoneal cavity, the pain is at once very severe and acute, there is always more or less shock,—all depending upon the amount of hemorrhage. If, on digital examination, the vaginal vault is found flattened and abdominal percussion and palpation reveals the presence of fluid within the peritoneal cavity, and, moreover, when this is associated with a thin, thready pulse and marked symptoms of internal hemorrhage and shock, time should not be lost. In this instance early operative interference is imperative if we would save the life of the patient. But even in many cases of sudden and alarming hemorrhage into the peritoneal cavity from a ruptured ectopic gestation-sac, coagulation and encapsu-

lation of the blood occurs early, and if it does so it can be readily determined on digital examination. Instead of flattening of the vaginal vault, a distinct doughy mass, slowly becoming harder, will be felt. Here, again, it is better to wait with the operation until the patient's condition has improved. Dr. Hunter Robb is right in his contentions. The stand he takes agrees with the most of the best abdominal surgeons in this country and abroad.

DR. J. HENRY CARSTENS, Detroit.—I would like to know how we are going to teach principles by quoting exceptions. If we teach our students the exceptions, of course they will think about them. But I believe in teaching them principles. If any of the gentlemen will tell me why and when it is a tubal pregnancy and when it is a rupture or abortion in a woman who has 6 inches of fat about her rectus muscle, they will do me a great favor, because I cannot do it. We cannot feel anything through the vagina. Everything is fat. We cannot feel anything through the abdomen. It is all fat. We must guess at it to a certain extent. In some of these cases we get a pulse of 100, 110, and increasing to 120, or 130 and 140, and the pulse keeps on going up and up. When a woman has such a high and increasing pulse you may depend on it she is bleeding, that the shock is from the hemorrhage that is going on. If she is, she ought to be operated on whether it is a tubal abortion, a rupture of the tube, or the forcing of the fetus between layers of the broad ligament. When you have got a bleeding point to deal with the best thing to do is to cut down and stop the hemorrhage. If I do not do it in such a case, I cannot sleep at night.

DR. HUGGINS (closing the discussion).—There is no doubt that hemorrhage in many cases of ruptured ectopic gestation may not recur. It is difficult to determine in the more serious cases whether hemorrhage will not recur and in some instances continue if operation be postponed indefinitely.

The majority of cases are not seen by the consultant until reaction from the primary hemorrhage has begun, and operation at this time is usually safe. It has been shown in the above-mentioned instances that hemorrhage severe and even fatal does recur. The mortality in this class of cases should be almost *nil*, and it is my belief that if the pendulum be allowed to swing to the other extreme in the treatment of this accident, many lives will be lost which might be saved by prompt surgical intervention.

ARTIFICIAL ANUS FOLLOWING OPERATION FOR INTUSSUSCEPTION. THREE YEARS COMPLETE OCCLUSION OF LARGE BOWEL; METHOD OF RESTORING CONTINUITY.

BY

JOHN YOUNG BROWN, M. D.,

St. Louis.

DURING a visit to my old home in Kentucky last June, I was called in consultation by Dr. Archibald Dixon, and Dr. Webb, of Henderson, to see a most remarkable and interesting case which I wish to report very briefly. Taking the case all in all, it is one of the most interesting I have ever encountered.

The patient's first attack was diagnosticated as one of appendicitis. During the second attack, for seven or eight days he had obstruction of the bowels, possibly due to the peritonitis which resulted from an appendicitis operation which was performed on him. This operation was done in the country by a country physician, who took a trocar and stuck it in the median line, and then began to enlarge the opening with his knife. Through the enlarged incision there was evacuated quite a large quantity of pus and fecal matter, and the artificial anus, which was established, with the fecal fistula, undoubtedly saved the patient's life. When I saw the patient the conditions I found were these: there were the remains of the median incision, and protruding from this median incision was the everted bowel, the bowel being turned wrong side out, and at the location of the intestine with the skin margin there was an artificial anus through which all fecal matter had passed for three years and a half, there being complete exclusion of the entire large bowel for that length of time. The patient had not had a natural bowel movement during all this time.

I had an opportunity of examining this case and demonstrated it before the county medical society. The boy undoubtedly did not have appendicitis, but the original condition was an intussusception. The second attack resulted in intestinal obstruction, with peritonitis and toxemia incident to the dis-

tention of the bowel above the peritonitis. The use of the trocar in this case had relieved the obstruction by making an artificial anus, and the intussuscepted bowel protruded at the point of least resistance. The next morning I operated on the patient at the city hospital in Henderson, making a median incision, and the conditions I found demonstrated the correctness of my conclusion.

One of the most interesting features of this case was the condition of the ileum from an obstructive band to the ileocecal valve. As I have said, this entire large bowel was out of commission for three and one-half years. This most remarkable condition was an ileitis obliterans, the ileum having contracted and swollen to such an extent that it was almost impossible to get a small grooved director through it. The appendix, as I thought prior to the operation, had not been responsible for this condition. The appendix was free, but showed that it had participated in the peritonitis brought about by the intussusception and the fecal leakage, but to all appearances this was a secondary and not primary incident.

The question came up as to how the intestinal continuity could be restored. I did not know when I started the operation. Many adhesions confronted me, and prior to that I demonstrated the various methods by which bowel continuity could be restored. On opening the abdomen I found there were very few adhesions, and without the slightest difficulty I was able to resect well back into healthy tissue, cut off the ileum at this point (illustrating on black board), obliterated the ileum, and treated it in the same way as I would the stump of an appendix. I cut it off, put a purse-string suture around it, removed the appendix, blind pouching the end of the ileum, and with a clamp and suture I did a lateral anastomosis, turning the fecal current back into the large bowel. There was some contraction in the lumen of the large bowel, but not enough to interfere with the lateral anastomosis.

But the most interesting feature of the case was the obliterated ileum. I feel that one of the principles we should observe in all cases, whether we resect a gangrenous bowel, or resect the bowel mucosa, which may be protruding, is to go well back into healthy tissue. If I had attempted to restore this, the probabilities are intestinal obstruction would have resulted. By blind-pouching this, it would put back into commission the large bowel. In twelve hours after the operation the patient was passing gas,

and in twenty-four hours he had a profuse diarrhea, which was checked with considerable difficulty.

I am becoming more and more convinced every day that the statement which has been made—namely, that the large bowel is absolutely useless, is correct. On many occasions I have put out of commission the entire large bowel, and it has not particularly interfered with the functions of the patient other than that of passing fecal matter through the anus. I recall a case that I reported at St. Louis before this association, where I took the entire large bowel out, and did an end-to-end anastomosis to the ileum and sigmoid. This patient was a very large woman, and was operated on for a strangulated umbilical hernia. She weighs between two and three hundred pounds. She was reoperated for peritonitis, her abdomen being simply opened and drained. I do not know what the peritonitis was due to; but she has no appendix; she has no large bowel except the sigmoid, and possibly the peritonitis was due to her tubes.

I have been doing a good deal of intestinal work, especially with reference to partial exclusion of the large bowel by performing lateral anastomosis in cases of mucous colitis, with gratifying results. Lane, of England, who has written extensively on this subject, thinks that many cases of chronic constipation are amenable to no method of treatment except surgery. From some skiagraphic work I have done after injections with bismuth, and having examined cases carefully with a view to the mechanics of the condition, I am inclined to think that he is correct in his conclusions. He was the first, I believe, to advocate the removal of the entire large bowel for cases of obstinate chronic constipation and intestinal toxemia as the result. He has since then receded a little from his first attitude and now resorts to lateral anastomosis. Lateral anastomosis is not a simple operation, and the work to be done in the future in this regard must be governed very largely by what is done on the large bowel.

I simply report this as a unique case, this patient being now in perfect health. All of his functions are practically normal. One point of great interest, as I have previously said, is the fact that he went on with the large bowel out of commission for three years and a half. The other point of interest is the obliterative condition of the ileum and the method by which bowel continuity was restored.

DISCUSSION.

DR. ALBERT GOLDSPOHN, Chicago.—The case reported by Dr. Brown comes very nearly being like one I had in hand during the last year. A man had had appendicitis for years, evidently, which was associated with stomach disturbance, and he was the victim of poor medical advice and a mistaken diagnosis. In my opinion he had appendicitis, and might have something wrong with his gall-bladder. Therefore, I cut him for appendicitis, and found the appendix to be a large, cheesy mass full of purulent material, and in addition to that, the lower part of the cecum was infiltrated with a hard mass, which, from its consistence, was more likely to be malignant than benign or inflammatory in character. I thought it my duty not simply to remove the appendix, but also to resect that portion of his cecum. The case was a bad one, and not looking for very much intestinal surgery, I though I would rather take the bowel off below the ileocecal valve and close it up there, notwithstanding that the wall of the intestine at that point was very much infiltrated, and I knew beforehand suturing would not hold there very well. However, I thought it better to take these chances. The result was that these sutures did not hold, partly because of the friable tissues, and partly because the operation was done in a septic field.

Getting the appendix out was a desperate undertaking, and to place the sutures in this gut, that could not be raised out of the abdomen, was quite impossible without infecting the sutures that were used to close the end of the cecum. Therefore, we had no union. Then resulted the opening of the end of the large bowel, and all fecal matter was discharged through that opening, below the pouch formed up here (illustrating on blackboard). He had no passage at all through the rectum for about three months.

Afterward I made a second operation through the right rectus muscle, and anastomosed the lowest available portion of the ileum with the most proximal available portion of the transverse colon, by an end-to-end union assisted by a Murphy button. The open ends of the excluded portion of ileum and ascending colon were closed. The result of that procedure was accurate union, and a few months later after he had been spending some time in the country, I extirpated the extruded portion of the large bowel, which ordinarily would be 12 or 15 inches long, but when distended with water was about 2 feet long. A good recovery followed. The man from the time this union of the ileum with the large intestine had been made, had perfect intestinal action.

I would ask Dr. Brown to explain more fully his technic of pouching the end of the gut, and uniting it with forceps, as I did not quite understand how he did that.

DR. ERNST JONAS, St. Louis.—Dr. Brown has just told us that he regards, from a practical standpoint, the existence of the large intestine as being of no important value in regard to the

absorption that is going on from the intestines. I would like to ask Dr. Brown whether he has observed that in cases of this kind, in which he makes partial or complete exclusion of the large intestine, the patients have developed a great amount of thirst. As most of you doubtless know, the human being practically drinks with his large intestine, 50 per cent. of fluid being absorbed by that portion of the gut. The antiperistaltic action of the large intestine carries the fluid into the colon, and from here, especially between the ileocecal valve and the hepatic flexure of the colon, the greatest amount of absorption of fluid goes on.

In two cases I had to make an opening in the cecum, and in these cases I noticed that the patients suffered greatly from thirst. These were patients who had an inoperable malignant growth of the transverse colon. I made an artificial opening in the cecum, and these patients told me that they felt like drinking all the time.

I know Dr. Brown has had a large experience in these cases of partial and total exclusion of the large intestine, and I am sure all of us would feel extremely grateful if he would give us his experience in regard to this point.

DR. ALEXANDER HUGH FERGUSON, Chicago.—The case reported by Dr. Brown is not only unique, but interesting and instructive. It was undoubtedly a case of intussusception and the manner in which he dealt with it does not merit any criticism.

I would like to ask Dr. Brown in this connection if in the light of his own experience and that of others it would not have been better if he had made a lateral anastomosis to the sigmoid instead of the ascending colon, and whether the diarrhea from which the patient suffered might not have been prevented by employing that method. I have noticed in my own work that I have more trouble with the cases where I make the artificial cecum longer than a normal one. All of my exclusion work has not been satisfactory. Most of it has. There are a great many things I have done that do not satisfy me, and it is the difference between the exclusion work on the right half of the large bowel and that on the left half. With regard to the immediate treatment of inflammatory obstruction, as in chronic appendicitis, and also in cases of intussusception, I wish to say a word. We are all coming to the conclusion that a minimum amount of surgery is followed by maximum amount of good to the patient when we remember one thing, and that is, to drain thoroughly. I operated on a little boy three months ago, whose abdomen was full of pus. I made an opening through the right rectus muscle, and found a gangrenous appendix with fecal matter and pus in the abdominal cavity. I made an incision through the right loin, so as to drain the kidney pouch and also Morrison's pouch; Douglas's pouch was drained by a medium incision. A fecal fistula followed in the three localities, and now he has a pouting bowel, but not nearly so extensive as when coming out an inch and a half, the fecal matter being discharged in the center.

In the early colotomy work we used to see in hospitals twenty or twenty-five years ago, patients went around with a sausage-shaped protrusion of the bowel extending from the side. I presume Dr. Brown has seen such cases, but with our modern methods that is obviated.

DR. JOHN W. KEEFE, Providence.—Dr. Brown has shown us some very brilliant surgery. I would like to mention briefly a case that has similar points in common with the one reported by him.

Some years ago I was called in the country to operate on a case said to be one of appendicitis. I found a young woman, pregnant about six months, with the abdomen distended, more tender on the right than on the left side, suffering from constant vomiting. I made an incision in the right portion of the abdomen, and found a twist, which involved the cecum and about 8 inches of the ileum. I withdrew the coil of intestine having a twist or volvulus. There was considerable pus in the abdominal cavity. I closed the wound below the two portions of the gut, which were stitched to the wound, and drained the pelvis. In forty-eight hours the woman had a miscarriage, but made a good convalescence, though with the feces coming out through the opening on the side of the ileum, the colon being excluded for eight months. This woman, during that period, improved a great deal in her general condition, but I do not recall that she complained of the thirst which Dr. Jonas mentioned.

On a subsequent occasion she was taken to the hospital, when I made an anastomosis of the ileum, with a portion of the ascending colon. I did not perform a lateral anastomosis, but took the end of the colon and anastomosed it directly into the transverse colon, similar to what the natural union of the ileum with the colon would be, instead of making a pouch of the ileum and doing a lateral anastomosis. I did this by the suture method, as it was previous to the time when we were using clamps for doing anastomotic work. I would to-day do lateral anastomosis, closing the ends of the ileum and cecum. The woman made an uninterrupted recovery, and has remained well since that time.

DR. BROWN (closing the discussion).—I do not know of any subject that is more interesting from a surgical standpoint, than that of dealing with artificial ani, particularly in such a case as has been outlined by Dr. Goldspohn, and I congratulate him on the excellent surgery he did. I would like to ask him whether the second operation he performed was a lateral anastomosis, or whether he excluded the lower part of the bowel.

DR. GOLDSPOHN.—I closed up the lower end of the bowel. I did an end-to-end anastomosis.

DR. BROWN (resuming).—The point I want to make is that we cannot primarily do ideal surgery in these cases. If one should attempt to do an ideal operation in these cases, and resect this portion of the bowel at the primary operation, the possibilities, even the probabilities, are he would kill the patient. Dr. Gold-

spohn, as I understand, opened up the excluded lower portion of the bowel, and then did a complete exclusion. He was justified in doing that because this bowel was open and could discharge its contents. Then he performed an end-to-end anastomosis, and later restored the condition, thereby resecting this portion of the bowel, and having practically the intestinal tract restored. We see the same conditions in operations where an artificial anus has been made for gangrenous hernia. (Dr. Brown constantly referred to a blackboard diagram.)

DR. Jonas has asked in regard to thirst. This patient I operated on was a Kentuckian, and they usually suffer from thirst (laughter). In a number of cases in which I have excluded the entire large bowel I do not recall any patient who complained particularly of thirst. I recall one case which I reported at a meeting of the Southern Surgical and Gynecological Association, in which I did a complete exclusion of the entire large bowel. This patient did not suffer in any way from thirst. He complained a good deal, and said he could not sleep.

I am convinced that the large bowel, except the sigmoid, is useless. I think it is necessary to have a sigmoid in order to control the bowel. In the case where the large bowel was removed, except the sigmoid, there had not been any indication of diarrhea. In fact, the patient was constipated and we had to give medicine to move the bowel. We know very little about the function of the large bowel.

Another important point is with reference to drainage in these acute intestinal obstructions. I am convinced we can do a mechanically perfect operation for intestinal obstruction, but if we fail to drain the proximal bowel above the constriction of its contents, many of these patients will die of toxemia. We have instituted a uniform technic at St. Johns, and that treatment begins the very minute the patient enters the hospital—namely, by washing out the stomach carefully, after which the anesthetic is given. If the small bowel is involved, as soon as the abdomen is opened we clamp above, put a clamp on here (illustrating) and cut right across the bowel, tying a tube in the proximal bowel. The rubber drain leads down to a basin, and while the resection is made this tube is working. No time is lost with the tube in the bowel, and we can get ready for the end-to-end or lateral anastomosis.

Another point is with reference to dealing with the bowel that is out of commission. If we have a loop of small bowel here (illustrating) with an artificial anus, there (illustrating) the loop of bowel out of commission, it is important to treat the bowel before you attempt restoration of intestinal continuity, because you have more or less contraction of the bowel. By giving gymnastics to the bowel it will facilitate very much the work to be done in the restoration of these conditions. In these operations I attempt to restore the conditions to as near their anatomical relations as possible.

NEPHROCOLOPTOSIS.

BY

HOWARD W. LONGYEAR, M. D.,

Detroit.

(With twenty illustrations.)

IN presenting this subject to the Association for the fourth time, I offer no apology, as the nephrocolic ligament having been born here, it is no more than natural and right that the child should return to its home from time to time, to report development and the story of its experiences, and possibly subject itself to needed advice and discipline. In my opinion, this return should be repeated until such time as its growth shall have become adequate to give promise of its perfect maturity.

I believe that in the nephrocolic ligament I have discovered the principal positive etiologic factor in nephroptosis. Believing that a nephroptosis, because of the action of this ligament, must always be secondary to, and the result of, a coloptosis (except when due to trauma), and consequently should not be considered separately, but of necessity with the prolapsed colon, explains my reason for the etiologic basis on which the subject is treated.

My contention regarding this action of the nephrocolic ligament gives a *raison d'être* for, and assists materially in proving the truth of the observation of Glenard—namely, "Enteroptosis without nephroptosis, but never nephroptosis without enteroptosis." This fact being accepted, the consideration of the subject of displaced kidney by itself, ignoring its cause and unavoidable accompaniment, in the displaced colon, would be a serious pathologic error and an omission of a full statement of fact, which would tend to lead to the unsatisfactory therapeutic results that have usually attended the treatment of cases of "nephroptosis" in the past.

The use of the terms "splanchnoptosis" and "enteroptosis," while describing a condition which may exist in exceptional cases, gives an erroneous idea of the pathology when applied to all cases of nephroptosis, and tends to lead into a maze of uncertainty and indefiniteness regarding both etiology and treatment.

Gastroptosis may be present with a nephroptosis, but not necessarily so, as is the case with a coloptosis, and when so present is almost inevitably a sequel to the nephrocoloptosis and one of the later developments of the pathology.

Hepatoptosis has no anatomic connection to be influenced by a nephrocoloptosis, and may occur independently of any of the other conditions. To get at a working basis for treatment it is true that all of these conditions and their relations to each other must be considered, but a concentration of thought upon the *beginning* of the involvement of the pathology is necessary to such an end, and it is upon this point that my endeavors are especially focused.

Still more misleading is it to look into the pathology no farther than the loose kidney. I believe that because of the commonly accepted and erroneous idea of considering the displaced kidney by itself the full pathological situation is misunderstood as well as the true significance and value of the symptomatology. It is quite commonly asserted by a number of authors that this little body when movable can, by the pressure of its weight, cause a variety of serious disorders, such as a kink in the colon by dragging it down; uterine displacements by the right kidney falling upon the organ; appendicitis by its weight interfering with the circulation of the organ; ovaritis; salpingitis; menorrhagia; metrorrhagia; hematocele; cystitis, and the like. When one considers that the weight of the kidney is but from four to six ounces, this all seems absurd, and when the fixation of it by the old methods—even when anatomically successful—so often not only failed to relieve the numerous manifestations attributed to it, but made them worse, it is no wonder that many physicians have become skeptical on the whole subject, and advise their patients to rather "bear the ills they have, than fly to others they know not of."

Patients are often told that the displaced kidney is of little importance, and that all that is necessary is for them to get fat and they will be all right. That is quite a safe prognosis, as these patients, usually, cannot get fat, but, on the contrary, continue to lose flesh, regardless of wisely-directed dietetic regimen, change of climate, and tonics. These are the patients that may be temporarily benefited by the Weir-Mitchell treatment of forced rest and feeding. They get up feeling much improved and think they are cured, but the erect position soon begins to cause a return of the irritation of the digestive organs,

and consequent interference with nutrition, and the fat fades away and the old drag of colon on kidney and duodenum begins again. The rest treatment is not to be decried in these cases, but an operation should precede it, when the rest and feeding will assist materially in making the cure permanent.

I believe that a more general use of the *x*-ray, a more thorough palpation technic, and a due appreciation of their symptomatology will result in a needed improvement in the early diagnosis of these cases and consequently in the treatment of less of them for neurasthenia, intestinal indigestion, chronic appendicitis, cholelithiasis, cholecystitis, gastric dyspepsia, etc., and the use of a practical therapeusis based on the existing pathology —the *cause*, and not the *effect*—will then receive attention. No one can foretell the stage of a nephroptosis in which torsion of the pedicle may occur and an attack of Dietl's crises be precipitated. Without fixation by surgical means all cases are liable to the accident at any time. The attacks are not only severe and painful at the time, but, especially when long-continued, sequelæ of a serious nature are liable to eventuate.

Diagnosis of these displacements has not been taught to students in any practical way in the past, and of recent years it is but superficially done. The use of posture, palpation and the *x*-ray, in abdominal diseases, should be as thoroughly taught clinically as the physical diagnosis of diseases of the chest, which receives so much attention. Very few general practitioners know how to examine a patient for nephroptosis, so they do not recognize it, and then they wonder where another physician finds so many!

I recently operated on a case of extreme nephroptosis suffering from severe neurasthenia and malnutrition who had spent the last year in a fruitless search for health, trying sanitariums, osteopathic and other kinds of treatment, and had been examined by a number of reputable physicians, but only one—a neurologist—told her she had a floating kidney, and he only barely mentioned it, and remarked that it might trouble her some time! She said she had had many elaborate examinations of her chest, blood-tests galore, tuberculine tests, urine, sputum, etc., but no one even suspected the kidney and colon. She had been treated by them all for neurasthenia and intestinal indigestion. The foregoing is only one of many, but a very common picture, and it should not be so.

The diagnostic *obsessive apathy* that exists among the rank and

file of the profession regarding the pathology in question is almost beyond belief or explanation. I believe the tendency to neglect this very serious pathologic condition is simply a bit of everyday human nature—a natural desire not to find things which are not of a definitely understood character and which cannot be remedied at all satisfactorily when found! What I hope to be able to accomplish is to assist in remedying this unsatisfactory state of affairs.

The prevalence of nephrocoloptosis is widespread and not wholly confined to any class, nationality, age, or sex. The floating kidney is found among the Bedouin women who live a nomadic life close to nature, where the developmental restraints of civilization and the corset play no part, as well as among the women of the most civilized countries, where dress, artificial ways of living, etc., are so much in evidence. The hard-working muscular factory girl and the delicate pampered society belle suffer equally. Many cases of nephroptosis have been noted in young children. I have seen a well-marked case in a girl of eight years of age.

A comprehensive understanding of the subject should lead to more thorough diagnostic effort directed to the kidney and colon, than is usually displayed in the public institutions conducted for the treatment of those suffering from nervous and mental disorders. I have been of the opinion for a long time that our asylums and sanitariums have many chronic invalids whose mental recuperation could be given a start by the discovery and treatment of this condition. Many may also be saved from the asylum by the early recognition of the condition, as the long-continued malnutrition, intestinal irritation and toxemia, neurasthenia, etc., caused by the displacement, are so frequently the chief factors in the commencement of the mental breakdown. The young woman who has a sudden nervous breakdown, preceded for some time by indigestion, flatulence, headaches, insomnia, progressive emaciation, and anemia, may be suffering from nephrocoloptosis and not to be one of those common cases where the easy diagnosis of "just nerves" is made.

The perfect construction of a well-designed machine requires that it shall be so made as to perform its work properly, and at the same time to continuously do its work for a reasonable period of time without breaking down or becoming out of order. That these purposes may be fulfilled, the first requisite that the designer insists on is that the materials used shall be of the

quality best adapted to the uses of the various parts of the mechanism. An imperfectly tempered spring, die, or cam, results in imperfect work of the machine, if not in utter failure.

The human body—the most perfectly designed of all machines—must be constructed under the same specific requirements to enable it to perform its given work in a perfect manner, that its various functions shall work in harmony, and the purely mechanical parts operate without friction or failure, and not break or give way when subject to the normal strains of the working machine. But right there, in the specification, comes the unsurmountable difficulty. The great Master Mechanic who designed this machine made the specifications perfect and plain to understand, but they are not always lived up to in the construction, and the results are, naturally, variable—one will succumb to the first strain almost as soon as finished—some vital part in such an instance, inheriting the tissue too fragile to do its part in the work of life. Defective construction in others may be shown in functional disorders leading to incomplete metabolism, gouty diathesis, tubercular tendencies, etc., or the lack of structural integrity may be marked in the purely mechanical tissues—those which have to do with the binding together of different parts—the sustaining tissues—aponeurosis, fascia, tendon and muscle. The tendency to hernia, uterine displacements, lateral curvature of the spine, prolapse of the internal organs of the body, etc., may be transmitted by heredity as well as a crooked nose, imperfect teeth or other improperly constructed anatomy. A man says he has a hernia caused by a strain, whereas the strain was but a contributing incident while the real, the fundamental cause, of his rupture existed before he was born, even at the inception of his existence concealed in the germinated ovum. Finely drawn theories and elaborate arguments are not necessary to substantiate this position as clinical evidence in its favor is abundant.

On the other hand, it does not seem reasonable that the small weight of the kidney alone is sufficient to cause its displacement, even when loosely secured, and so we must look to the secondary or contributing causes for the link to complete the causative chain. To prove it when found it must be always present with the nephroptosis, and its action must be positive—*mechanically* positive. I contend that in coloptosis and the action of the nephrocolic ligament these conditions are fulfilled. This conclusion is substantiated by the evidence of my radiographic

investigations, which show coloptosis present in *all* of a large number of cases of nephroptosis examined.

That the kidney is influenced by the bowel, and not the bowel by the kidney is proved by the fact, as stated, that all the cases of prolapsed kidney had also prolapsed bowel, while a number of radiographs showed prolapsed bowel with normally placed kidney (endorsement of Glénard's theory). The presence and action of the nephrocolic ligament makes it the most important factor in connection with the secondary or contributary causes, as by it the prolapsing colon pulls the kidney out of place.

The factors necessary for the occurrence of nephrocoloptosis, I believe to be four in number—namely: (1) weak hepatocolic ligament; (2) prolapse of cecum and ascending colon; (3) loose attachment of kidney at its hilum and to Gerota's capsule; (4) strong and short nephrocolic ligament.

Without this combination the kidney will not be displaced. If the kidney is bound strongly to the back by the tissues around the hilum and bloodvessels, and well adherent to Gerota's capsule (as usually found in postmortem), it should not only be impossible to dislodge it by such traction, but, with a short nephrocolic ligament, this mechanical arrangement should assist in *preventing* a coloptosis, and I believe this to be the normal mechanical action of these parts.

Reference to the radiographs of cases will show that the laxity of the peritoneal attachment of the colon at the hepatic flexure is the key to the whole line of decensus. When this gives way the cecum and ascending colon drop, and the drag on the kidney through the nephrocolic ligament begins. Hence I believe the right kidney descends or not, according to the laxity of its supports and the degree of traction exerted on it through the nephrocolic ligament, by the dropping of the ascending colon and cecum, which is permitted by a lax hepato-colic ligament.

Coloptosis without nephroptosis I believe to be due to the presence of a long, loose nephrolic ligament, which allows the bowel to descend without making traction on the kidney. I have found this to be true in three operations done for the cure of constipation and colonic irritability, in cases of coloptosis without nephroptosis.

Much has been said of late, regarding the body shape as a cause of nephroptosis, and deductions made based on elaborate measurements and mathematic calculations, but I have found this theory to be of little practical use from either an etiologic or

diagnostic standpoint. While a large number do have a conformation of body described, many do not fill the requirements at all, so that I have come to look upon the imperfectly developed body in these cases as due to the same primary cause as the ptoses which are so frequently found associated with it—namely, *hereditary laxity of restraining tissues*. Thus, the body shape is in no sense a cause, but simply a concomitant condition.

A thorough consideration of the symptomatology and diagnosis would alone occupy more than the time at my disposal, there-

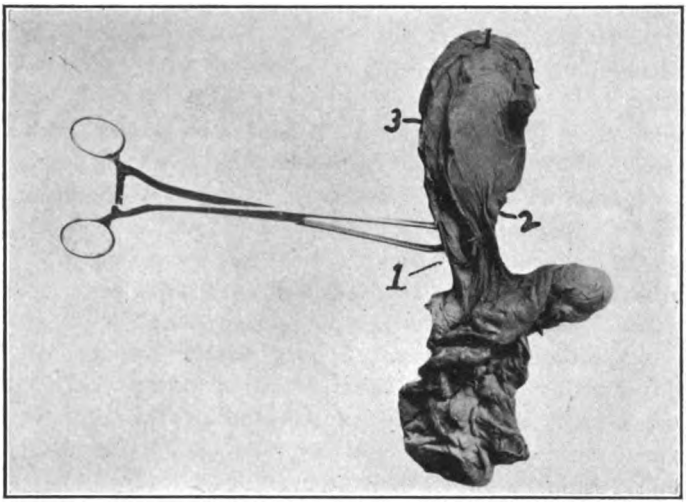


FIG. 1.—Right kidney, cecum, and ascending colon. Nephrocolic ligament: 1. secured with forceps hook, as in the author's operation of nephrocolopexy. The dissection shows peritoneum covering kidney and bowel. 2. The edge turned back and Gerota's capsule uncovered. 3. Its margin is seen to pass down and merge into the ligament.

fore, the salient points only under these heads will be touched on, and most profitably in connection with the radiographic reports of cases. I cannot be too emphatic, however, in emphasizing the value of early diagnosis, which should not be difficult if the meaning of the symptoms produced by the condition is understood. All obscure cases of neurasthenia, malnutrition, derangement of the colonic, gastric, or hepatic functions, etc., should be carefully examined for displacement of the kidney and bowel—or that of the colon alone, which, while the most difficult of diagnosis, will occasionally be found to be at the bottom of the trouble.

TREATMENT.

While much may be said regarding the nonsurgical treatment, especially on the subject of prophylaxis—the beginning of observation and treatment of cases of immature development in the young being of the utmost importance—also treatment by rest and forced feeding, massage, mechanical supports, etc., could be profitably considered, but the time will not permit, so I shall simply map out my general plan of treatment, and give a few illustrative cases, showing *x*-ray findings.

I consider all cases of nephroptosis operative, because the condition of coloptosis which accompanies it is progressive, and nutrition is bound to be affected by it. Operation in suitable cases should precede all other treatment. No patient should be operated on who shows indications of acute irritation of the kidneys, or in which the kidney to be operated is known or suspected to be pathologic in any way. The general plan of treatment is as follows:

The day prior to operation the bowels are completely evacuated by giving a double seidlitz powder every two hours, beginning early in the day, until five or six free watery evacuations have been induced. The early administration of the cathartic is necessary, so that the bowels may become quiescent by evening, thus insuring a quiet night and the resumption of normal conditions on the morning of operation.

The seat of operation is sterilized in the evening and covered with a sublimate pad, which is removed at the time of operation and the skin scrubbed with a gauze sponge and alcohol. The operation is performed in the usual position for all kidney operations, using the simple kidney elevator which I show you and which I have devised for this work. (Fig. 2.) It is composed of two parts—a metal round-topped dome having a round hole in the top through which is fitted a common ice cap, which is half-filled with warm water when in use. The appliance can be used on any table.

The details of the operation are practically as described in my previous paper published in our transactions for 1906, so I will not go into the technic at this time, except to say that the success of the operation depends largely on the ability of the operator to secure the entire nephrocolic ligament well below the lower pole of the kidney and attach it in such a way that it will

remain secure and hold up the kidney and immobilize the ascending colon and cecum. (Fig. 3.)

The wound is dressed in the usual manner, and then a large

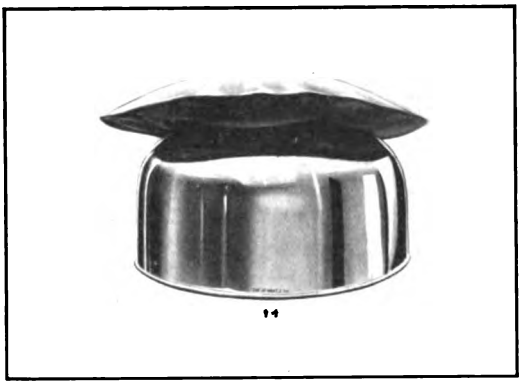
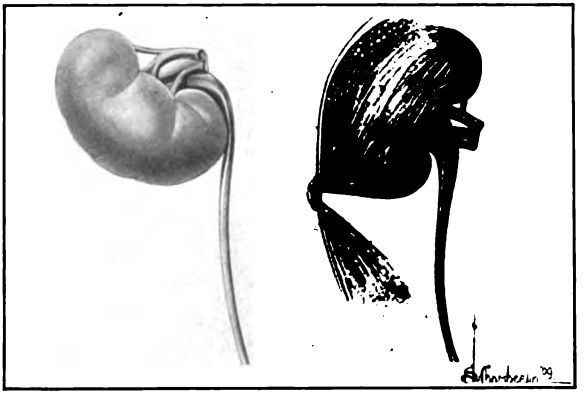


FIG. 2.—Longyear's kidney elevator.

thick pad, filling the entire abdominal space below the navel, is firmly applied with adhesive plaster and a binder, which is kept in place during the time the patient is in bed. The patient



A B

FIG. 3.—A. Position of prolapsed kidney showing compression of ureter. B. Position of kidney when replaced by fixation of the nephrocolic ligament.

is kept in bed for eighteen days, lying on the back or right side for operation on the right kidney, or the back only for double nephrocolopexy.

On arising, the previously fitted abdominal truss-band, which I show you, is applied. (Fig. 4.)

The truss attachment is formed of thin spring brass and is cut out and accurately fashioned to each patient by means of a previously made pattern of sheet lead, which permits of accurate adjustment to the peculiarities of conformation of each individual. A pad is attached to the under surface of the band, above the pubis, and just beneath the central portion of the truss. This band is to be worn until the patient shall have gained sufficient intraabdominal fat to sustain the transverse colon, and thus render the use of the band unnecessary. I consider the postoperative band a necessity, because the colon in all of these cases

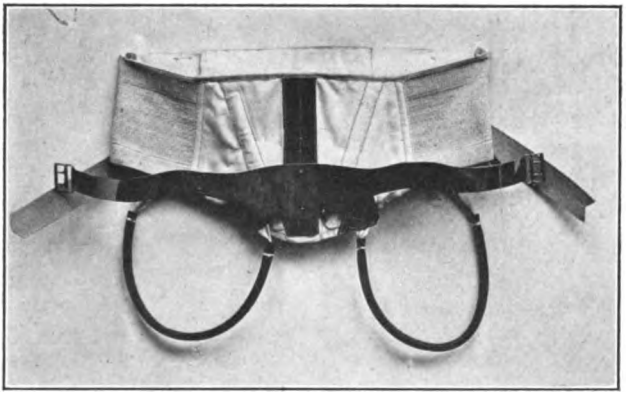


FIG. 4.—Longyear's abdominal supporter.

has become dilated and elongated by long-continued distention and needs support of some kind until its future quiescence shall result in a possible contraction to enable the intraabdominal fat-pad to support it.

A most important part of the postoperative treatment is that relative to the colonic function. As the use of cathartics tends to continue the long-standing condition of irritability of the colon, which is pathognomonic in these cases, their use is strictly prohibited unless absolutely necessary. Instead of cathartics a plan of *lubrication* is instituted, and for this purpose "petrolatum oil" is used, giving a tablespoonful afternoons and bedtime. This being a paraffin and not a fat, it is not saponified or changed in the alimentary canal, but passes through unaltered, and so acts in a mechanical way to lubricate and smooth

out the angulated and irritable bowel. The patient is directed to assist the unloading of the lower bowel by a low enema of normal salt solution every evening, if no movement has been had during the day. The bowels soon act regularly without the enema and then the oil is gradually diminished as the bowels become normal in their action, as they soon do, almost invariably after this operation.

The radiographs of the reports of cases which follow are selected from a large number as illustrative of certain points in pathology. They were taken for me by Dr. P. M. Hickey, of Detroit. Quite a number of our earlier efforts were failures, but of late improved appliances, taking the radiograph with the subject in the standing position, and more definite knowledge as to the use of the bismuth necessary to produce the shadow, have all combined to give better results. It is for this reason that the most of the radiographs which I show are of recent date. They show diagnostic possibilities in this line of work which should be used more generally than it is. To better bring out the salient points for reproduction of the photographic prints, the important points have been outlined.

The patient is given one ounce of C. P. subnitrate of bismuth suspended in a pint of milk—or still better, a pint of kumiss. A radiograph is taken of the stomach, when so desired, immediately afterward, and one of the colon in from twelve to twenty hours thereafter. If the bowels have been loose, or a cathartic has been previously given, a much shorter time should be observed than in cases having constipation, or normal colonic activity. Radiographs thus taken give a good idea of the position of the stomach, cecum and transverse colon, which is all that is desired in this class of cases. The bismuth should be used by enema to ray the descending colon, sigmoid, and rectum.

NOTES ON RADIOGRAPH CASES.

(Examination of patients for nephroptosis made in the dorsal decubitus, or lateral decubitus, with flexed thighs and knees, and deep inspiration used to dislodge the kidney.)

Dietl's Crises.

1. OPERATIVE CASE XV.—Female, single, forty-two years old. Attack of Dietl's crises three weeks before examination. Swelling and tenderness in right side, also pain and tenderness in right inguinal region. (Fig. 5.)

Operation April 3, 1907. Harper Hospital. Nephrocolopexy and abdominal section, with myomectomy of three small tumors, and appendectomy. Appendix found adherent to abdominal wall near the internal ring.

May 3, 1909. Kidney in normal position. No pain in that region. Nutrition much improved and has gained in flesh. Still wears the abdominal band.

Extreme Neurasthenia.

2. OPERATIVE CASE XXXIV.—Female, forty-two years old, married, two children. Seeks relief for neurasthenia; constant headache; progressive emaciation; almost constant pain in ab-

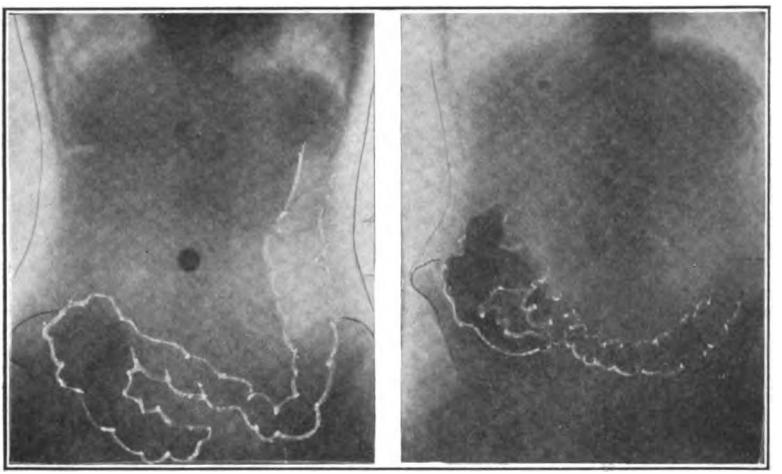


FIG. 5.—Shows very low point reached by cecum and apparently complete relaxation of the hepatocolic ligament.

FIG. 6.—Shows result of moderate relaxation of the hepatocolic ligament.

domen, back and thighs; and alternating diarrhea and constipation. Is a chronic invalid, and unable to stand or walk but for a few minutes at a time.

Examination showed right kidney entirely below the costal margin, with patient in the dorsal position, and without inspiratory effort, also a ruptured perineum of second degree, and endometritis. (Fig. 6.)

Operation, November 3, 1908, nephrocolopexy, perineorrhaphy and curettage, at St. Mary's Hospital. In bed five weeks.

July 3, 1909. Has gained thirteen pounds and feels better and stronger in every way. Still has some abdominal tenderness, and her nerve tone and endurance are returning slowly.

Bowels normal by the use of the petrolatum oil, once daily.

Bilateral Nephrocoloptosis.

3. Female, thirty-six years old, married, no children; factory hand. Seeks relief for pain in the left side, weakness and general emaciation. Is very nervous and can work but about half the time—often has to leave work because of pain in side and exhaustion. Has large frame, broad chest and abdomen.

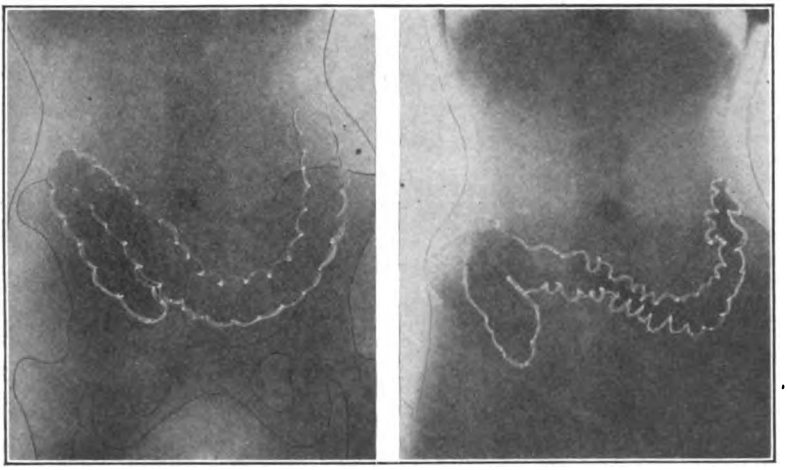


FIG. 7.—Shows complete prolapse of colon.

FIG. 8.—Shows result of moderate relaxation of the hepatocolic ligaments in a young patient.

Examination showed right kidney entirely below the costal margin with patient on the left side, during deep inspiration; and the left kidney partially below the ribs with patient on the right side. Vaginal examination was negative. (Fig. 7.)

Operation on both sides advised, and hospital arrangement made, but patient sought other advice, and died of pneumonia following an *abdominal section* three weeks later.

Right Nephrocoloptosis.

4. OPERATIVE CASE XXXIX.—Female, single, twenty-five years old. Seeks relief for neurasthenia, malnutrition, debility, headache, dizziness, nausea, flatulence, cramps in the abdomen,

sleeplessness and dysmenorrhea. Never can sleep on the left side, as it causes palpitation of the heart. Bowels constipated and require constant attention.

Examination shows right kidney entirely below costal margin. Left lateral position, with deep inspiration necessary to bring it down, when it remained so until replaced manually. (Fig. 8.)

Operation April 13, 1909, at Harper Hospital; nephrocolopexy and dilatation of cervix uteri.

Weight at operation, 94 pounds.

Weight June 7, 1909, 100 pounds.

Weight Sept. 1, 1909, 106 pounds, when she reported bowels in perfect condition; has discontinued the petrolatum oil.

Right Nephrocoloptosis Enormous Cecum.

5. Female, twenty-six years old, married, no children.

Seeks relief for excessive nervousness, emaciation, headaches, nausea, frequent attacks of itching all over the body, constipated

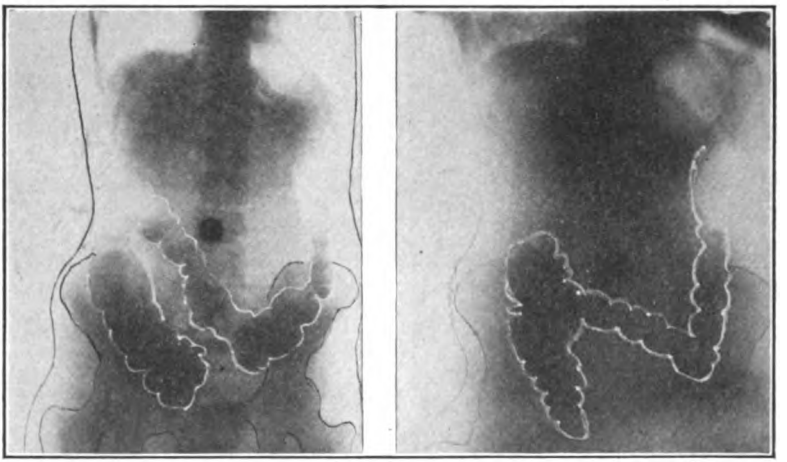


FIG. 9.—Enormously distended cecum. Appendix behind pubes, showing fallacy of McBurney's point as a diagnostic index in these cases.

FIG. 10.—Showing very low position of right side of colon and large collection of gas at the splenic flexure where the transverse (now *ascending*) colon meets the descending colon, forming an acute angle

bowels and genera debility. Can walk but little, and spends much of her time lying down. (Fig. 9.)

Examination in the left lateral position, on deep inspiration right kidney drops down to umbilicus. Operation recom-

mended but deferred. Is now under the care of a gastroenterologist; wears an abdominal support; reports she is not much, if any, better. Note the enormously distended cecum.

Right Nephrocoloptosis Partial Occlusion at Splenic Flexure.

6. Female, thirty-seven years old, married, four children. Seeks relief for burning sensation over entire abdomen, quite constant pain in left side above the hip, dryness of the mouth, and alternating diarrhea and constipation. (Fig. 10.)

Examination in left lateral position, deep inspiration brings right kidney entirely below the costal margin. Notable for the large collection of gas at the splenic flexure, where it is apparently held by the angulation, and is the apparent cause of the pain in this side.

Operation advised.

Typical Case Showing Extreme Neurasthenia.

7. OPERATIVE CASE XXXVIII.—Female, forty-two years old, married eighteen years, one child sixteen years old, menstrual history normal.

Seeks relief for neurasthenia, general debility, malnutrition, dyspepsia, loss of memory, etc. Thinks injury is a railroad accident many years ago caused a shock to the nervous system, and that the present illness is due to it. Has lost thirty pounds in five years. Spends most of her time lying down; constipation very troublesome, requiring daily medication or enema. Mentality much impaired, being unable to carry on a connected conversation. Has no hallucinations. Sleeps little and never on the left side. Frequent griping pain in bowels and mucus in stools. Most pain in left side of abdomen.

Has been to sanitariums and health resorts for years with no benefit, and has consulted various kinds of specialists, from the neurologist to the osteopath, without benefit. They all advised change of scene and climate after unsuccessful periods of treatment. The diagnosis was usually "neurasthenia" and "intestinal indigestion."

Examination February 27, 1909. Facial expression drawn and tired looking; complexion muddy, almost to jaundice. Abdominal walls thick, flaccid and relaxed. Deep inspiration, dorsal position, right kidney can be felt down to the umbilicus, and does not return without manual assistance. With patient on the left side, and knees drawn up, the kidney is felt well in the

median line. Left kidney not displaced. Some tenderness at McBurney's point—cecum and ascending colon—not the appendix.

(See Fig. 11 for position of appendix.)

Vaginal examination showed ruptured perineum of second degree, rectocele and uterine hyperplasia.

February 28. *X*-ray showed the cecum in the bottom of the pelvis as far as gravity could take it, and the transverse colon very low, causing sharp angulation at the splenic flexure. (Cause of pain in this side.)

Nephrocolopexy, perineorrhaphy and curettage recommended.

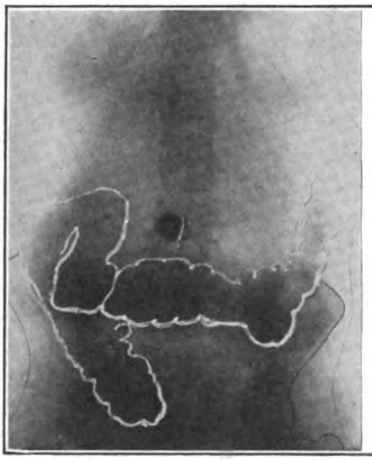


FIG. 11.—Showing great prolapse of cecum and moderate prolapse of transverse colon.

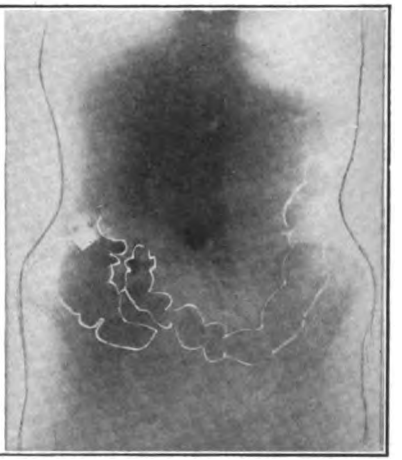


FIG. 12.—Showing result of moderate relaxation of hepatocolic ligament.

March 4, 1909. Operation at Harper Hospital. In bed three weeks.

April 1, discharged from Hospital, recovery ideal in every way. April 17. Bowels regular, without medication of any kind since operation; feels well and is gaining in flesh. Left for Atlantic City.

May 20, returned from Atlantic City; bowels regular and appetite good. Has no abdominal pain, and has gained eighteen pounds.

July 30, 1909. Bowels regular. Often walks two miles a day without fatigue. Sleeps well; has gained thirty-two pounds since operation. Mentality greatly improved, is sprightly and

vivacious and enjoys life. On sending her to Dr. Hickey for another *x*-ray, he was especially struck with the greatly improved facial expression and mental tone. Radiograph a poor one. Dr. Hickey said I had made her too fat for a good one.

Right Nephrocoloptosis.

9. OPERATIVE CASE XL.—Female, thirty-seven years old, married, one child. Seeks relief for neurasthenia, approaching melancholia in spells of depression; nervous irritability; dyspepsia; diarrhea; pain over whole abdomen, but especially in left side; emaciation; muddy complexion. Has passed the greater part of the past two years in sanitariums and health resorts, and has consulted various specialists. Was treated by them all for neurasthenia and intestinal indigestion and toxemia, and had all kinds of examinations of blood and secretions made.

Sleeps well, which is unusual in these cases.

Examination showed the right kidney entirely below the costal margin while in the dorsal position. (Fig. 12.)

Operation May 6, 1909, at Harper Hospital. September 29, 1909, reports great improvement in every way. Gained thirteen pounds; complexion is clear, bowel movements improving, rarely has diarrhea. Her family reports great improvement in the nervous irritability. Rarely has pain in the left side, and only occasional attacks of indigestion.

Typical Case Having Dietl's Crises.

10. OPERATIVE CASE XXXXI.—Female, twenty-six years old, married two months. Was always thin and dyspeptic, and bowels constipated. Gastroptosis diagnosticated a year before, and has worn an abdominal support for it. Has had two attacks of Dietl's crises—one three weeks before marriage and the other two weeks after that event. Had fever with both attacks, which were also attended with much swelling of the right kidney and surrounding structures, with albumin, casts and red blood cells in the urine, which conditions persisted for some time after the subsidence of the acute symptoms. (Fig. 13.)

Patient sent to St. Mary's Hospital and put to bed after the second attack, and kept under treatment, with absolute rest, for four weeks, when, all indication and symptoms of local irritation having subsided, and the urine cleared up, the operation of nephrocolopexy was performed on June 12, 1909. A retroverted

uterus was restored by the Alexander operation at the same time. Recovery without incident. In bed four weeks. August 20, reported in good condition, no pain, bowels regular by using petrolatum oil, appetite good, and increasing in weight.

Coloptosis without Nephroptosis.

12. OPERATIVE CASE L.—Female, fifty-six years old, single. Seeks relief for insomnia, loss of flesh (forty pounds in three years) progressively increasing nervous irritability and depression, and fears loss of mind (and looks it). Face drawn and distressed; complexion muddy, bowels very constipated and

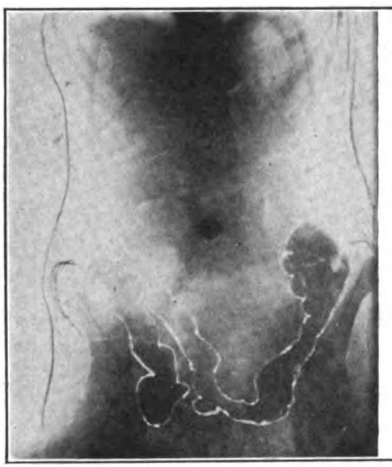


FIG. 13.—Showing general coloptosis and large fecal mass at splenic flexure.

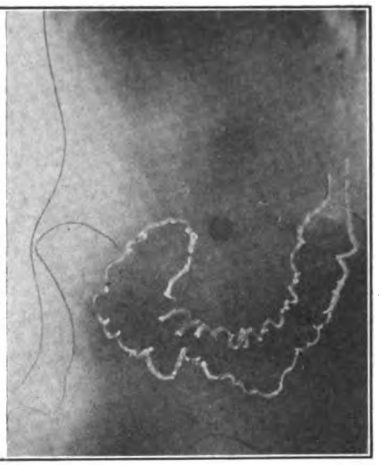


FIG. 14.—Showing general coloptosis.

movements attended with pain in the abdomen. Much pain in the left side over the hip—especially at night, when lying, and often has severe cramps of the muscles of the thigh of this side. (Figs. 14 and 15.)

Repeated examinations in various positions showed both kidneys to be normally placed and no other abdominal or pelvic trouble. Radiograph June 20, 1909, of stomach and June 21, of colon. July 10, 1909, applied my abdominal band and prescribed pretrolatum oil.

September 16, 1909. Reports some improvement in sleeping, and bowel movements. Still has abdominal pain, though less severe.

(Operation performed at Harper Hospital, October 15, 1909. Good recovery.)

14. OPERATIVE CASE XLVI.—Female, thirty-three years old; single; office girl. Had ulcer of the stomach at fourteen. Seeks relief for frequent attacks of pain in the abdomen, and a constant sensation of burning in the abdomen and sides. Walking increases symptoms, which are gradually becoming worse. Very thin and always constipated. (Fig. 16.)

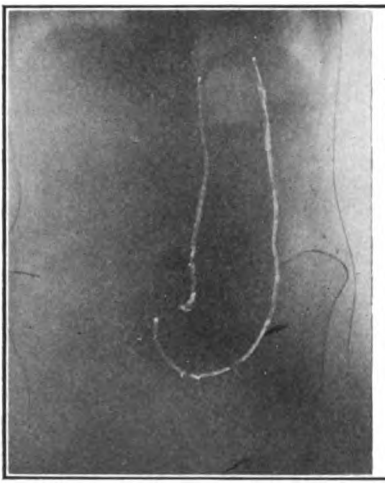


FIG. 15.—Gastroptosis.

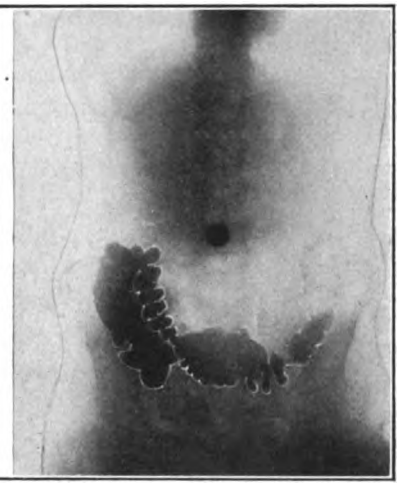


FIG. 16.—Showing complete prolapse of colon.

Examination in dorsal position showed right kidney below the costal margin, and when on the left side was felt partly to left of umbilicus. Operation at Harper Hospital, September 14, 1909. Good recovery.

Nephro-gastro-coloptosis.

15. Female, twenty-nine years old, married, three children. Neurasthenia, emaciation, pain in abdomen, "bearing down," backache, dyspepsia, nausea. Has had several operations during the past seven years, besides having her children—appendectomy, abdominal section for adhesions, curettage, perineorrhaphy.

Examinations showed the right kidney down only when on the left side, with deep inspiration. (Figs. 17 and 18.)

Abdominal band[1] applied July 20, 1909, causes nausea, and does not use it.

Operation deferred.

Coloptosis without Nephroptosis.

(Radiographs before and after operation.)

17. OPERATIVE CASE XLI.—Female, forty-two years old, married, three children.

Seeks relief for constant pain in the left side, above the hip, and in the loin. Cannot walk or work because of it. Has had it for six months. Abdominal section one year before by myself for hematoma of both ovaries.

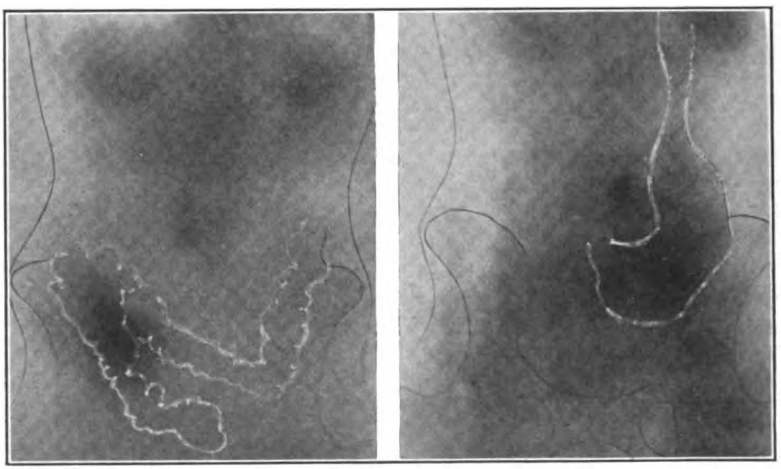


FIG. 18.—Showing result of good relaxation of hepatocolic ligament.

FIG. 17 —Showing quite extensive gastroptosis.

Examination showed both kidneys normally placed. Muscles in the left loin very rigid and abdomen on same side full and flat on percussion. Patient sent to the hospital, a cathartic given, and high enema used, and examination made under ether, which was negative in result, excepting that it showed complete relaxation and normal condition of the muscles of the loin.

Patient was kept in bed under constant observation for a week without a change in the pain, which was nearly constant.

June 29, 1909, *x*-ray made showing large collection of gas at splenic flexure and complete ptosis of cecum. (FIG. 19.)

Operation at Harper Hospital July 1, 1909. Very long and loose nephrocolic ligament. No pain in the left side after the operation; after three weeks in bed and one week up, went home.

October 3, reports no pain and is improving in every way. (Fig. 20.)

Thus far I have operated on fifty-one cases by this method and have had no mortality, which is noteworthy, as 18 per cent.

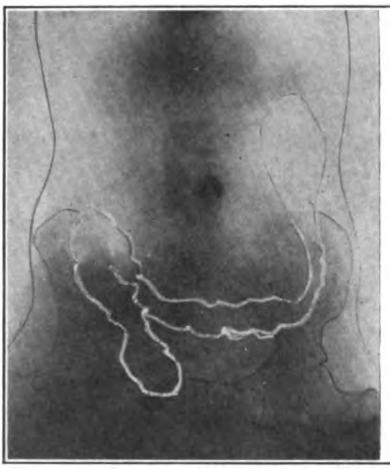


FIG. 19.—Showing result of great relaxation of hepatocolic ligament, and collection of gas at acute angle at splenic flexure, before operation.

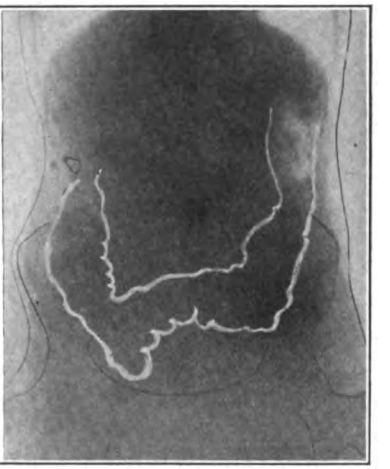


FIG. 20 —Showing elevation of cecum and hepatic flexure and a tendency to correction of the sag to the left of the transverse colon. (See position of silver-wire suture.)

of them had abdominal sections, and 66.6 per cent. minor operations in addition to the nephrocolopexy.

A complete report of my cases is in course of preparation, and will soon be ready for publication. A brief summary of results, noting only the salient points, is as follows:

SUMMARY OF CASES.

Number of operations since January 8, 1905, fifty-one.

RESULTS.

Position of kidney:

Perfect, twenty-nine; improved, eight; failure, one.

Nutrition as shown by body weight:

Increase from five pounds to twenty-five pounds within a year after operation, thirty-four. No increase, four.

Regulation of the movements of the bowels:

Normal, either without medication or by the use of the petrolatum oil, thirty.
Improved, six.
Not improved, two.

Nervous system:

Very much improved within one year, seven.
Much improved within one year, twenty-seven.
Not improved within one year, four.
(Older cases show most improvement.)

Endurance:

Very much improved within one year, fourteen.
Much improved within one year, fifteen.
Not improved within one year, nine.
(The older cases show greatest percentage of improvement in this respect.)

Dietl's crises:

Two cases, both completely cured.
Cases not reported because of inability to reach them, or too recently operated, thirteen.

The most noticeable immediate betterments are: improved nutrition, as shown by increase of body weight—which, in some cases, is very rapid—and relief from colonic catarrh, constipation and the general symptoms of colonic irritability.

Just what is accomplished by the fixation of the bowel that leads to the remarkable improvement in the action of the colon has been an interesting study to me. Until I had postoperative radiographs made, I attributed the improvements to the elevation of the cecum and ascending colon, but as the radiographs—even in my best cases of recovery—indicate too little change in this respect to be counted on as the only positive factor, I have come to the conclusion that the improvement is largely due to the *immobilization* of the gut, caused by the fixation, which acts as a substitute for the relaxed and deficient, hepatocolic ligament. The reverse peristalsis, alternating with the forward peristalsis, producing the *churning* action of this part of the colon, is probably facilitated by the fixation, as well as the passage of the contents of the bowel over the hepatic flexure. The benefit to nutrition I attribute to the removal of the traction on the duodenum as well as to the resumption of the normal action of the

cecum. The neurasthenia disappears more slowly, but does so surely as the nutrition continues to improve.

Cases should be under careful observation for at least a year after operation, as the old, long-standing, bad habits of nerve, muscle and mucosa do not give way completely at once, so that assistance and guidance are often necessary till the natural functions have been entirely restored.

In cases previously attended by severe neurasthenia, great tenderness of the abdomen, gastric irritability, etc., much benefit has been derived by some of my patients from a course of post-operative sanitarium treatment, in which forced rest and feeding, freedom from care, abdominal fomentations, and the like, were the principal restorative agencies.

In fact, the complex pathologic conditions presenting, in a great proportion of these cases—especially those of long standing—demand, for their welfare, the best they can obtain from the surgeon, the gastro-enterologist (or internest), and the institutionist. When this principle is generally acted on, and these specialists get together and work in harmony with these patients, each doing his very important share, and giving the best to be had in his field, and not jealously opposing each other, then will the greatest gain be made in their treatment and the enteroptic will cease to be the reproach of the profession that it has been for many years.

HOW CAN WE BEST EDUCATE WOMEN TO SEEK RELIEF EARLY FROM CARCINOMA OF THE UTERUS?

BY
CARLTON C. FREDERICK, M. D.,
Buffalo.

As such a very large proportion of cases of carcinoma of the uterus reach the operator too late for successful radical operation, its eems that the various factors which are at work producing this state of affairs should be studied and analyzed, with the view of an attempt to define some plan of procedure or education by which a change of such conditions may be brought about.

All pelvic and abdominal surgeons will agree that more than 50 per cent. of all cases of carcinoma of the uterus and more nearly, 80 per cent. to 90 per cent. present themselves at a stage too far advanced for the operator to promise success. With malignant neoplasms of the breast, the same used to be true, but the public is becoming more alive to the necessity of early operation and a very small percentage of women now allow a lump in the breast to go far before consulting a physician.

To a limited extent, the more intelligent women are coming to a realization of the urgent necessity of early operation for carcinoma of the uterus and are learning some of the symptoms of that dire malady. If a woman were to lose as much, or even a minor percentage of blood from any other orifice, as she does from the vagina when flowing excessively, how long would she refrain from consulting her physician? It is the old story of familiarity which breeds contempt.

Gradually as carcinoma or any other pathological lesion of the uterus grows, the flow increases in quantity and duration and the woman becomes familiar with it and thinks this time that it will stop just as it did before, hence hopes it will be better next time. Besides all this, is she not at the period of the menopause, between forty and fifty? and, Mrs. Smith, her neighbor, used to flow profusely when she had her change but is now all right. She may have consulted her doctor; he didn't examine her and suggested the same idea, change of life, which would relieve her of all her troubles when she has once finished it. It is this fetish of the menopause, and the belief in necessity of

profuse bleeding at that period, which holds so strong a place in the mind of the laity, which has been fostered by the medical profession, and which has been the cause of the sacrifice of so many lives among women of all nations and all times.

If we could but teach the family doctor to insist on an examination of his patient, and to point out the well attested fact that too frequent and too profuse bleeding from the uterus is pathological, and that its cause should be sought out, it would be well. He should not gloss over the condition by surmising that it is due to the period through which the woman may or may not be passing. True, it is, that sometimes women do flow profusely at the time of the climacteric and escape without having any severe pathological lesion to account for it. But, right here, there is usually a condition which is not taken into account and without being given due thought and reasoning is considered to be a parallel case to that of the woman who has a pathological lesion and flows not only too much and too long, but also too frequently —namely, the woman who flows profusely at her period when she probably has not menstruated for two or three or four months, has a physiological reason for its being profuse, and the old neighbor woman and the complacent family doctor do not recognize the difference between too profuse a flow at regular or too frequent intervals and that which comes months apart, due to the irregularity of the "dodging period," which is simply a compensatory flow, making up the general average. That flow is not due to a pathological lesion; it is simply natural to lose in one period all she would have lost in the two or three or four she has passed. But even that woman should be examined; for I would lay down and enforce the rule, were it possible so to do, that every woman, young or old, should be thoroughly examined, whenever she flows too frequently or too profusely for any number of periods in succession.

We all have had patients brought to us by the attending physician, telling the tale that he wanted to examine his patient when she first came to him a year or so ago, but she would not submit to it, and this is his excuse for not having found out the true condition. We all believe, we all know that this is the merest foolishness. If the doctor whom a woman consults insists and, at the same time, forcefully explains the necessity of his finding out at once the conditions, not one woman in a hundred will dissent.

But what shall we say of the doctor who does examine his

patient, finds an eroded, thickened and easily bleeding cervix, and who treats that patient locally for months while he sees the growth increasing and the patient's condition getting progressively worse? Such occurrences are not a rarity. If the growth is not in the cervix, but in the endometrium, there is more excuse for his delay; even then he is not doing his whole duty by his patient.

What constitutes a thorough examination? Certainly, if a digital examination finds no cause for the bleeding, the endometrium must be investigated. Therefore, if the cause of the bleeding is not found in the cervix, and is not due to some other growth like a fibroid, the physician's duty plainly is to curet and submit the scrapings to careful microscopical examination by a competent pathologist. Every general practitioner is capable, or should be, of doing this, but if he feels that he does not desire to do it, he should at once refer the patient to one who can and will do it properly. We have known of such a physician who curets a patient in his office without an anesthetic, hoping thereby to ascertain the true condition. This is an improper procedure and one calculated to lead to failure; there is only one way to do it properly and successfully and that is under anesthesia and not in the office. If she has not a carcinoma or a fibroid, curetment will probably cure her.

Be it far from me to find too much fault with the general practitioner who is usually intelligent and wide awake to the best interests of his patient. I am only speaking of the small minority who do such things or neglect to do anything, wishing to show them the error of their ways. There is also a need for a crusade of popular instruction of our women and the medical profession alone can do this. The laity is alive to the necessity of early operation for acute appendicitis; the laity is alive also to the necessity of early operation for breast tumors which are located where they can see and feel them. But because they cannot see or feel the malignant growth of the uterus, and because they are so familiar with genital bleeding, they allow it to grow unheeded. What we need to do is to teach women the dangers of delay when they have abnormal genital discharges of any kind, especially if they be offensive or consist of too free or too frequent discharges of blood.

This paper is too elementary for this presence and I ask your pardon for inflicting it upon you but we here, as everywhere in our professional work, must act to a certain extent as teachers

to the great body of medical men whose lines of practice do not bring them into contact with so large a number of these cases as is our fortune, or more properly put, our misfortune. It is our duty to teach them and through them, our women. Can we do any more than to publish our papers and the discussion of them in the current medical journals? I have chosen this subject particularly with the hope that it will lead to a discussion of ways and means by which we may do something more promptly than by waiting for the slow evolutionary changes which time brings about. Is it not feasible to put this subject before some committee of the American Medical Association and through them secure the distribution by Boards of Health bulletins which can be placed in the hands of women generally? State and local boards of health are instructing the general public on other questions of sanitation and preventive medicine. Tuberculosis and other communicable diseases are on the list, but do we ever see anything about cancer, the scourge which is doing so much fatal work everywhere? Of course, nothing can be said of its prevention, but much can be said to instruct the people as to its prevalence and of its symptoms when it attacks the uterus.

The statistics of operations done for carcinoma of the uterus are much better from German clinics than in this country, not because they have more skilful operators but because the women are operated upon earlier, their women have been taught to consult the surgeon earlier when they have symptoms of malignant disease of the uterus. I think there is a belief among general practitioners in this country, that hysterectomy for carcinoma of the uterus is an unsuccessful operation in so far as it prevents recurrence. Such has been the case and will continue to be so long as women so suffering are not operated upon earlier than they have been in the past. Early radical operations do give good results, and they ought progressively to give better and better results. Hysterectomy for carcinoma of the body gives notably better results even in late cases than when the cervix is involved. Our women should not only be taught that early operation gives better results, but also that the severity of the operation and the mortality and the morbidity are decreased thereby.

Note.—Dr. Frederick read his paper at an evening session and, the hour being late, discussion was postponed until next day. Meanwhile, the author was called away, taking an early train.

When the subject was called up, Dr. Pantzer suggested that as Dr. Frederick was absent his paper be not discussed, but instead that a committee of three be appointed by the president to consider the recommendations contained therein, to report next year. This received the unanimous vote of the association, whereupon the president appointed as such committee, Drs. C. C. Frederick, H. O. Pantzer, and E. Gustav Zinke.

RUPTURE OF THE UTERUS DURING LABOR.

A STUDY BASED UPON THE CASES TREATED IN THE THREE DIVISIONS OF THE NEW YORK LYING-IN HOSPITAL.

BY

RALPH WALDO LOBENSTINE, M. D.,

New York.

(With seven illustrations.)

THE cases of rupture of the uterus that have come under my care, either directly or indirectly, have made such a profound impression upon me, because of the very high maternal and fetal mortality, carrying with it so much suffering and anguish—the greater part, or all of which, might be avoided—that I feel it will perhaps not be amiss if I attempt at this time to present for your consideration the essential features of this important subject.

We have had under our care at the Lying-in Hospital, in a series of 60,000 cases, forty-six cases of complete rupture of the uterus, twenty-nine of incomplete rupture, and three of rupture of the vaginal vault without actual laceration of the uterus. It is interesting in this connection to note that complete ruptures—as shown by our figures as well as by those of other observers—are of more frequent occurrence than the incomplete. This relation, however, must be due in a measure to the fact that doubtless many cases of the lesser grades of severity pass at times unrecognized.

A rupture of the uterus may occur at any time during the first and second stages, or even during the latter months of pregnancy.

The condition of "complete rupture" is found but seldom among the wealthy. It occurs far more often in multiparæ than in primiparæ. In the Lying-in Hospital series there were forty-four cases of complete rupture in the former and only five in the latter (this includes the three cases of rupture of the vaginal vault); while in the "incomplete type" there were eleven multiparæ and eighteen primiparæ.

v. Winckel had fifteen multiparæ and two primiparæ.
Knoblauck reports seventy-five multiparæ and five primiparæ.
Kolaczek reports eighty-two multiparæ and two primiparæ.
Bandl reports thirty-five multiparæ and four primiparæ.
Trask reports 181 multiparæ and thirty-nine primiparæ.
(v. Winckel.)

The chief reasons for the greater frequency in multiparæ of complete rupture are these: 1. The general health of multiparæ among the very poor is not, as a rule, as good as among women who are pregnant for the first time. 2. In a considerable number of women who have born children the uterine musculature has been weakened by inflammation, by scars of former incomplete tears, or by operative scars.

GENERAL ETIOLOGY.

1. *Conditions Due to the Uterus.*
   (a) Uterine scars due to Cesarean section (two of our cases); old incomplete lacerations of cervix or lower zone, etc.
   (b) Prolonged dry labor.
   (c) Tumors of the uterus.
   (d) Fixation operations of uterus.
   (e) Anomalies, as "uterus duplex" and "unicornis."
   (f) Degenerations of the uterine musculature; abnormal imbedding of chorionic villi.
   (g) Congenital hypoplasia of uterus.
   (h) Congenital or acquired stenosis of cervix.

2. *Conditions due to the Child.*
   (a) Congenital anomalies, as hydrocephalus and other monstrosities.

Ivanhoff reports four cases of hydrocephalus in 124 cases of rupture.

Keith reports sixteen cases of hydrocephalus in seventy-four cases of rupture.

Hohl reports five cases of hydrocephalus in seventy-seven cases of rupture.

Fred. Müller reports five cases of hydrocephalus in 108 cases of rupture.

Schuchard reports fourteen cases of hydrocephalus in seventy-three cases of rupture.

Kormann reports three cases of hydrocephalus in sixty-three cases of rupture.

Merz reports eighteen cases of hydrocephalus in 230 cases of rupture.

In our own series there has been but one case of hydrocephalus in the seventy-eight cases of rupture.

(b) Abnormal presentations of the fetus, especially *transverse presentations.*

3. *Conditions Due to the Pelvis.*

(a) Pelvic contractions.

(b) New growths originating in any of the pelvic organs or in the pelvic girdle.

Pelvic contractions are directly responsible for a very large percentage of complete ruptures. Of the different varieties of pelvic deformities, the "generally contracted pelvis of moderate grade" is acknowledged as the one most frequently seen in these cases.

Bandl gives nineteen small pelves in thirty-two ruptures; Fritsch, 388 deformities in 500 ruptures; v. Winckel, eleven in seventeen; Merz, seventy in 230 ruptures. (v. Winckel.)

4. *Intrauterine manipulations*, as rapid manual or instrumental dilatation of the cervix, forceps, version, too rapid extraction of after-coming head, embryotomies, and the like.

ETIOLOGICAL FACTORS IN OUR SERIES OF FORTY-SIX COMPLETE RUPTURES.

1. Spontaneous ruptures due to—	
(a) Pelvic contraction,	21 cases
(b) Cesarean section scar,	2 cases
(c) Scar tissue after amputation of cervix,	1 case
(d) Transverse presentations,	3 cases
(e) Hydrocephalus,	1 case
2. Traumatic ruptures—	
High forceps,	3 cases
Internal podalic version,	5 cases
Accouchement forcé,	
for placenta previa centralis,	5 cases
for eclampsia,	1 case
Embryotomy,	1 case
3. Ruptures due both to version and transverse presentation,	3 cases
Total,	46 cases

PATHOLOGICAL ANATOMY.

Complete rupture of the uterus may be either spontaneous or traumatic. It may occur in any portion of the uterus, but is most frequently seen in the lower uterine zone. The laceration may be only large enough to admit the finger or it may allow the escape of the child into the peritoneal cavity. In the classification of the various ruptures we believe that two fundamental types may be recognized, namely: 1. the transverse; 2. the longitudinal or vertical. In the former, if in the anterior uterine wall, the bladder is frequently extensively injured, while in the longitudinal rupture—excepting in the simpler cases—the uterine vessels on the side of the tear are usually involved, accompanied by more or less extensive damage of the broad ligament.

These two fundamental types are but rarely well defined. The writer believes further, that within certain limits, the method of occurrence of the rupture, *i.e.*, whether it is due to intrauterine manipulation or whether spontaneous in origin, largely determines the "primary nature" of the laceration—the former giving rise to the "primarily vertical type," the latter to the "primarily transverse rupture" of the lower zone.

In our list of cases there were twenty-six that probably started as the vertical type and twenty as the transverse. Of the twenty-six cases of the vertical type, eighteen occurred in the left side and six only on the right (two were mesial). (One of this group had a tear on both sides.) Of the twenty cases of the transverse type, thirteen occurred on the anterior wall and seven on the posterior. (In one instance both anterior and posterior walls were partially involved.)

The majority of our cases showed more or less fusion of these two fundamental types, owing to the fact that practically all of the cases presented the picture of an excessive degree of trauma.

A pure fundal rupture was seen but three times (two of these Cesarean scars) in this group of cases.

According to Sauvage, in a series of thirty-six complete ruptures, longitudinal tears were found twenty-one times and transverse fifteen times. Wychgel and Sauvage, Fred. Müller, and others state that transverse tears of the posterior uterine walls are much less frequent than of the anterior.

MECHANISM OF SPONTANEOUS RUPTURE.

Normally, at the time of labor, with the development of uterine contractions, the uterus becomes differentiated into two definite zones or segments. The upper or fundal segment is the actively contracting portion of the uterus and is therefore the part that dilates the cervix and expels the child. The lower zone remains practically passive. These two segments are divided by what is called the "contraction ring." As labor progresses, the

FIG. 1.—Vertical rupture in fundal zone.

fundal zone increases in thickness and the contractions become more vigorous. The lower zone becomes thinner and thinner by a combination of circular and longitudinal stretching of its fibers. The contraction ring gradually assumes a higher level, and in the presence of a dystocia (whether due to a pelvic contraction, a large head, or other abnormality) actually becomes of a pathological significance. The location of the "contraction

ring" is seen and felt externally, while internally it develops into a well-marked ridge. As the process continues, the whole uterus becomes retracted, tetanically contracted, and the lower zone so thinned out—especially when the site of a chronic

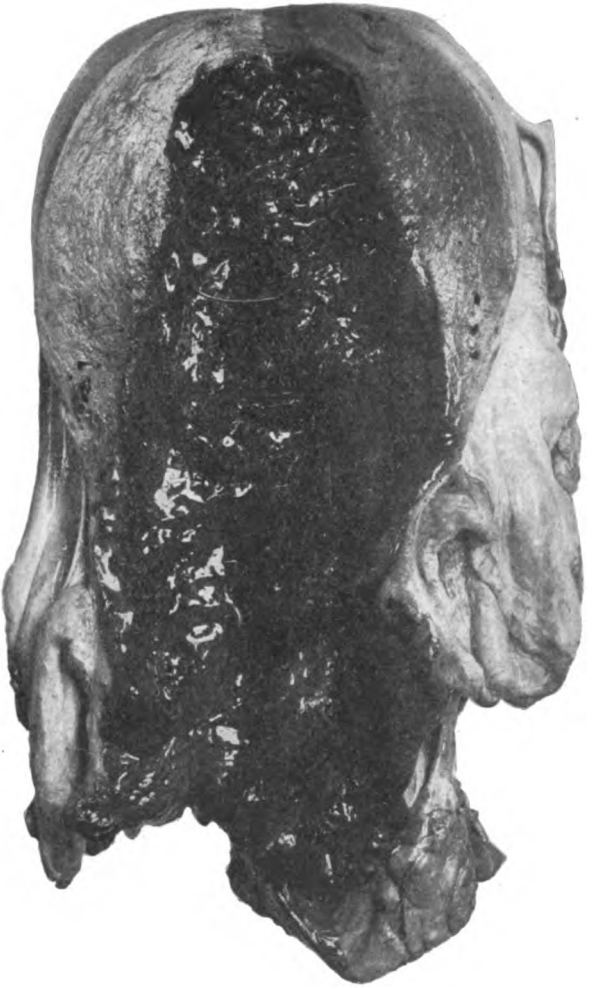


FIG. 2.—Vertical rupture through the entire length of the anterior uterine wall.

inflammation—that it finally is forced to yield to the unusual strain. Moreover, it has been shown by Bandl and Michaelis, Schröder, v. Winckel, and we ourselves have had abundant proof thereof, that the *imprisonment of the lower portion of the*

cervix, between the presenting part—especially the head—and the pelvic brim, will account very largely for the above phenomena, and will explain most of the spontaneous ruptures.

Other observers, as Veit and more recently Schröder, believe, that the "lower fixation-point" lies in the connective tissue surrounding the cervix and upper vagina.

In those cases in which the cervix does not become "imprisoned," but, on the contrary, is drawn up over the presenting

FIG. 3.—Vertical rupture through left lateral uterine wall, tearing away the entire anterior leaf of the left broad ligament.

part (and this is especially seen in transverse presentations), the vaginal vault is likewise gradually drawn up more and more and is ultimately put to such a strain that a rupture occurs. In the simpler lacerations there results merely a rupture into the peritoneal cavity without actually damaging the uterus proper, while in the severer cases a typical transverse rupture of that organ develops also.

Bandl, v. Winckel, Michaelis, and others testify to the observation that the most frequent ruptures occur in multiparæ, in pelves of moderate contraction, and especially in justominor ones, for

in these cases the presenting part—especially the head—exerts pressure more or less equally upon the entire circumference of the cervical ring, which, becoming edematous, is finally absolutely caught between head and pelvic brim. This occurs likewise in other types of pelves, but is less common.

We would note further that the ligaments of the uterus—

FIG. 4.—Vertical rupture through the right lateral uterine wall.

especially the round and broad ligaments—owing to their natural development during pregnancy, act as real supports to the lower uterine zone when the latter becomes dangerously thinned out. Finally, we should not forget the great restraining and protective power which the anterior abdominal muscles exert upon the anterior wall of the uterus.

SYMPTOMS OF COMPLETE RUPTURE OF THE UTERUS.

1. *Premonitory.*—Prolonged and severe uterine contractions, increasing in intensity—the presenting part not making the proper advance; a pulse increasing in frequency; the patient

becoming more and more worn and haggard. The uterus becomes more and more tonically contracted and rotated on its long axis. A sharp line of demarcation can be observed between the upper and lower zones. The round ligaments become very prominent, especially the left, as the axial rotation is usually to the right.

FIG. 5.—Transverse rupture at utero-vaginal junction with great destruction of tissue

2. *Active Symptoms of Rupture.*—As a rule, the patient, after presenting for some little time the above symptoms, suddenly, during a severe uterine contraction, cries out in great anguish, complaining of a sharp—often agonizing—pain in the uterus, and usually feels that something has given way in the abdomen. The latter soon becomes exceedingly tender. Immediately following these symptoms, all uterine contractions cease. There may or may not be profuse external or internal hemorrhage.

There are cases, however, where the symptoms of actual rupture progress more slowly.

Vaginal examination shows a retraction of the presenting part (as a rule); a rupture in some portion of the uterus; the child, wholly or in part, free in the peritoneal cavity. Eversmann maintains that the fetus escapes into the abdominal cavity much less frequently than is generally believed. His figures are

FIG. 6.—Irregular transverse rupture of the lower anterior zone (membrane still in place).

7.2 to 16 per cent. of all cases. In our series this occurred in seven cases; *i.e.*, in 15 per cent.

If the child is entirely outside the uterus, the latter may be felt either directly behind the symphysis or well over to one side of the false pelvis. Although some authors claim that in such cases the uterus is always firmly contracted, we do not believe this to be the case. It is, we believe, only the case in milder grades of trauma. In our cases, the uterus has, more often, been *large, flabby, and boggy*. Soon after the occurrence of the

rupture, the patient develops symptoms of shock. The pulse becomes rapid and wiry; the face becomes pale and anxious and covered with sweat; the abdomen distended and tender. (There are, however, exceptions to the latter.) If there is profuse hemorrhage, there is chilliness, air hunger, etc. Death occurs frequently within a few hours either from shock or hemor-

FIG. 7.—Rupture through the scar of a former Cesarean section, extending down to the undilated cervix.

rhage or from both—sometimes very suddenly. If the patient does not die within the first twenty-four hours, she becomes gradually weaker, the face becomes more pinched and anxious, the abdomen more and more distended, the pulse weaker and rapid, the temperature subnormal or rising higher and higher. The urine is diminished in quantity and is often bloody. Vomiting is usually present. The chief cause of the "late deaths" is sepsis.

The above is the picture presented by the extreme cases of rupture. In the more favorable ones, either after operation or

simply with tamponage, the symptoms gradually improve and the patient ultimately recovers.

In the cases of rupture after Cesarean section or in those rare cases that rupture early in labor, there may, practically, be no premonitory symptoms.

The following are brief abstracts of the histories of the forty-six cases of complete rupture in our series:

CASE I.—*Spontaneous Rupture.*—Mrs. Lena T., para-I; at term. Total duration of labor uncertain, membranes ruptured early; second stage six hours. When first seen by us, patient found to be in a condition of moderate shock. All uterine contraction had ceased. There was severe abdominal pain. The diagnosis of rupture of the uterus was made at once. The child was dead. An internal podalic version was performed (as being the quickest mode of delivery) and a craniotomy of the after-coming head. After the removal of the placenta, the uterus and laceration were packed with iodoform gauze; the amount of bleeding was moderate. The dystocia was due to a *simple flat pelvis.* The patient was then transferred to my service in the hospital and a hysterectomy performed. On opening the peritoneal cavity, only a moderate amount of blood was found therein. The uterus was large, soft, and boggy. The rupture was a large transverse one in the lower zone anteriorly at the level of the internal os, opening both the vagina and left broad ligament. The uterus was removed, leaving a small section of the cervix. All bleeding was checked; all raw surfaces covered with peritoneum. After the toilet of the peritoneal cavity, the abdominal wound was closed without drainage. The patient made a rapid recovery.

CASE II.—*Spontaneous Rupture.*—C. N. 7429. Mrs. F. L., age thirty-two, para-II; at term. Patient's membranes had been ruptured for five days; she had been in labor two days and in the second stage many hours, when she suddenly began to show symptoms of collapse. When first seen by us, there was vomiting and marked abdominal distress. Her temperature was 103° F. and the pulse 140. There was no fetal heart; there was a foul discharge from the uterus. A craniotomy was at once performed and an infusion given. The patient continued to bleed moderately and was in severe shock. A laparotomy was then performed by the writer. The peritoneal cavity contained but little blood, but the odor was very bad. The uterus was large and flabby. There was an extensive laceration in the anterior uterine

wall at the vault of the vagina, extending transversely and involving the entire left broad ligament. A panhysterectomy was quickly performed, the peritoneal cavity cleansed with physiological salt solution and drained *per vaginam*. The abdominal wound was closed without drainage. The patient seemed to rally for a while, but died about six hours after the operation. Dystocia was due to flat (simple) pelvis.

CASE III.—*Spontaneous Rupture.*—C. N. 6689. Mrs. R. G., para-II; at term. Patient went into active labor two and one-half days before entering the hospital. About twelve hours before being brought to us, the pains suddenly ceased after several unusually severe ones, and the child seemed to the patient to escape from the uterus. There was moderate bleeding. On admission, she looked septic. There was no very great amount of shock; there was moderate oozing from the uterus. The abdomen was distended and tender; vaginal examination showed a generally contracted pelvis, with a true conjugate of 7 cm. The vaginal mucosa was badly lacerated. There was a large transverse uterine rupture posteriorly at the utero-vaginal junction. The hand passed freely into the general peritoneal cavity. The uterus was fairly well contracted; the child and placenta were free in the peritoneal cavity. A laparotomy was at once performed by the writer. The abdomen was found to emit a foul odor and to contain child, placenta, and blood-clots. After their removal, the uterus was removed by panhysterectomy. The broad ligaments were not badly torn, but were markedly edematous, so that ligaturing of the uterine vessels was difficult. The pelvis was drained with iodine gauze. After cleansing the peritoneal cavity, the abdominal wound was closed in three layers. The patient stood the operation fairly well, but we feared that she was too septic to live. At the end of twenty-four hours she had passed no urine. We feared occlusion of the ureters by our ligatures of the uterine vessels. Dr. Walter C. Klotz kindly catheterized the ureters for me. Both catheters were checked at about 3 cm. from the ureteral orifices. Thereupon I at once reopened the abdominal wound, found both ureters greatly distended down a short distance from the bladder. Two suspicious ligatures that were apparently compressing (although not surrounding) the ureters were cut, and at once the ureters collapsed, emptying themselves into the bladder. This accident occurred, I believe, because of the difficulty at the primary operation in making the ligatures hold in the edematous broad ligaments. The abdominal wound was

rapidly closed. The patient passed thereafter a fair amount of urine, but died unexpectedly, about six hours later, of streptococcus septicemia.

CASE IV.—*Simple Flat Pelvis. Spontaneous Rupture.*—C. N. 6457. Mrs. S. G., para-V; at term. The patient had been in labor for twenty-four hours with the membranes ruptured from the start. After being in the second stage for about three hours, she suddenly had a very severe pain which caused her to feel as if "something had given way in her abdomen." There was a profuse hemorrhage; all uterine contractions ceased. The patient was at once delivered with forceps without much difficulty. The uterus and laceration (which existed) were packed with iodoform gauze and the patient sent to my service in the hospital at once. The packing controlled the hemorrhage largely. There was no intense shock. A laparotomy was performed. On opening the peritoneal cavity this was found to be full of blood and blood-clots. The laceration in the uterus extended upward through the cervix along the right lateral wall of the uterus nearly to the fundus. The anterior leaf of the right broad ligament was torn away. The bladder seemed intact, although a catheterized specimen of urine before operation showed some blood. A supravaginal hysterectomy was performed and a strip of iodoform gauze passed down through the remains of the cervix. The peritoneal cavity was washed out with salt solution and the abdominal wound closed in three layers, with catgut. The patient convalesced rapidly, but developed on the ninth day a vesico-vaginal fistula, which was closed at a later date by another operator.

CASE V.—*Traumatic Rupture.*—C. N. 7976. Mrs. J. S., age thirty-four, para-VI; at term. Patient had a placenta previa centralis. When examined there was profuse bleeding with the cervix dilated to 6 cm. and soft. A rapid dilatation was performed, the hand passed through the placental tissue and an internal podalic version done. There was some difficulty in bringing the after-coming head through the rim of cervix that persisted. A living child of good size was obtained. After the delivery of the placenta, there was found to be a complete longitudinal tear of moderate extent through the anterior lower segment of the uterus, through which intestine could be felt. The opening was at once packed with iodoform gauze and the patient stimulated. There was no great amount of shock,

and as the rent was moderate and apparently not bleeding, no laparotomy was done; convalescence proceeded satisfactorily.

CASE VI.—*Traumatic Rupture.*—C. N. 2383. F. M., age sixteen, para-I; at term. Second stage not known. Total duration of labor uncertain. Admitted in second stage with profuse hemorrhage. Membranes had ruptured prior to admission. Unsuccessful attempts had been made to deliver with high forceps. Cervix found to be torn through on both sides. On left side tear extended through vaginal vault into and through the broad ligament. Delivery accomplished with high forceps in hospital. Patient in profound shock after delivery; pulse 140. Operation deemed inadvisable. Tamponade of uterus and broad ligament. Intravenous infusion given. Condition very poor, but held out for five days and died on the sixth day—puerperal sepsis.

CASE VII.—*Traumatic Rupture.*—C. N. 2760. T. H., age thirty-three, para-IV; at term. Second stage unknown. Total duration of labor about forty-eight hours. Membranes ruptured twenty-six hours prior to admission. Transverse presentation—prolapse of arm and leg. Several attempts at podalic version by private physician. On admission general condition very poor, pulse feeble and rapid. Examination revealed left arm protruding through tear in uterus, which extended from below in front, vertically upward through the attachment of the left broad ligament, involving all the layers of the uterus. Bleeding profuse. A version and craniotomy on after-coming head were performed. Laceration packed with sterile gauze, followed by immediate removal of uterus. Death occurred shortly after operation.

CASE VIII.—*Spontaneous Rupture. Contracted Pelvis.*—C. N. 2300. A. R., age thirty-seven, para-VII; at term. Duration of labor not known. Membranes ruptured during first stage. On admission, patient suffering from shock. Profuse bleeding; pulse 160. Version and extraction—still birth. Rupture of uterus found. Immediate hysterectomy was performed, but before peritoneum could be sutured the patient died.

Pathologist's report: Laceration in uterus four inches long on posterior surface transversely.

CASE IX.—*Traumatic Rupture.*—C. N. 2252. K. McN., age twenty-seven, para-III. Placenta previa centralis; accouchement forcé—version, extraction—profuse bleeding after delivery. Laceration of cervix into left broad ligament and through into

peritoneal cavity. Uterus and vagina packed with gauze. About three hours later pulse began to fail and patient died in one-half hour.

CASE X.—*Traumatic Rupture.*—C. N. 1243. A. D., age thirty-seven, para-VII; at term. Second stage not known. Total duration of labor, forty-eight hours twenty-seven minutes. Time of rupture of membranes not known. Brought finally to hospital. Transverse presentation, embryotomy. Examination after delivery revealed laceration of cervix posterior and to left. considerable oozing; uterus and vagina packed with sterile gauze, Sudden death of patient on eighteenth day. Autopsy showed perforation of fundus uteri size of a lead-pencil, localized sub-acute peritonitis surrounding perforation. Cause of death—sepsis.

CASE XI.—*Spontaneous Supture. Justominor Pelvis; Large Child.*—C. N. 1229. A. S., age twenty-eight, para-III; at term. Second stage eight hours. Total duration of labor, fourteen hours five minutes. Presentation breech, L. S. A. Presenting part suddenly receded and active bleeding began. On investigation it was found to be a ruptured uterus. Case transferred to hospital. Patient showed signs of increasing shock. Immediate hysterectomy decided on. Fetus and placenta delivered through abdominal incision—still birth. Patient died during operation. The rupture involved the uterus posteriorly, running from the right broad ligament across to the left side of the uterus, stripping away the left broad ligament.

CASE XII.—*Traumatic Rupture.*—C. N. 1139. K. F., age thirty-two, para-VI; gestation six months. Placenta previa; accouchement forcé; manual extraction of fetus and placenta. Examination immediately afterward revealed a deep laceration into peritoneal cavity through the cervix and lower zone to the right posteriorly. Bleeding moderate but continuous, and general condition very poor. Uterus and vagina were tightly packed with iodoform gauze, but patient never rallied and died one hour and forty minutes later.

CASE XIII.—*Traumatic Rupture.*—C. N. 585. L. R., age twenty-eight, para-VII; at term. Second stage, three hours and forty-five minutes. Total duration of labor thirteen hours and forty-six minutes. Membranes ruptured spontaneously second stage. Impacted shoulder presentation. Prolapsus funis; podalic version and extraction; hand introduced for mem-

branes, and rent discovered in left lower uterine segment and broad ligament. Packed with iodoform gauze and transferred to hospital. Hysterectomy performed. The rupture extended through the cervix and through anterior fold of left broad ligament into peritoneal cavity. Pulse very weak at end of operation and death occurred six hours later.

CASE XIV.—*Spontaneous Rupture.*—C. N. 4164. Y. C., age twenty-six, para-III; at term. Second stage unknown. Time of rupture of membranes unknown. *Oblique irregularly contracted pelvis.* Patient in labor for three days; attempted forceps by outside physician. Admitted to hospital with uterus in state of tonic contraction. While undergoing preparation for Cesarean section uterus ruptured. Abdomen incised, child found free among intestines; no signs of life. Oblique or nearly transverse rent in uterus anteriorly in lower zone, extending into left broad ligament. Hemorrhage almost absent. Hysterectomy performed. General condition good after operation. Recovery and discharge on forty-seventh day.

CASE XV.—*Traumatic Rupture*:—C. N. 4091, E. C., age twenty-nine, para-I; gestation seven months. Membranes ruptured artificially during first stage. Eclampsia, moribund on admission, rallied somewhat after infusion. Accouchement forcé, podalic version. After delivery symptoms of hemorrhage. Exploration revealed laceration in right side of cervix extending upward along right wall of uterus to a point 2 cm. above internal os into peritoneal cavity. Patient died during packing.

Autopsy.—Vertical laceration through right side of cervix and lower portion of the body of the uterus, involving also the right broad ligament.

CASE XVI.—*Spontaneous Rupture.*—C. N. 4029. C. W., age twenty-six, para-IV; at term. Duration of second stage not known. Membranes ruptured in first stage spontaneously. Contracted pelvis. Previous labors: 1. forceps; 2. craniotomy; 3. Cesarean section. Cord prolapsed, with rupture of membranes in first stage. Labor pains severe, uterus ruptured some time (?) in second stage. Sudden signs of shock and profuse hemorrhage. Version and craniotomy on after-coming head performed. Laparotomy immediately after delivery. Laceration transversely in lower zone, involving extensively the left broad ligament. Total hysterectomy. Death of patient the following day.

CASE XVII.—*Traumatic Rupture.*—C. N. 3344. T. B., age thirty-four, para-V; at term. Duration of second stage not

known. Total duration of labor not known. Time of rupture of membranes not known. Patient admitted to hospital with rupture of uterus subsequent to version by outside physician. General condition very poor. Laparotomy and hysterectomy immediately done. Death before completion of operation. Uterus showed two complete tears in posterior wall and one in anterior, transversely in lower zone. Peritoneum was stripped off from right lateral wall of pelvis. Abdominal cavity full of blood.

CASE XVIII.—*Traumatic Rupture.*—C. N. 3108. I. P. D., M. Z., age twenty-five, para-I; at term. Total duration of labor thirty-one hours fifty-five minutes. Dry labor. Nonengagement of head after thirty hours with ruptured membranes. Cervix completely dilated manually. Attempted forceps; podalic version and extraction. Hemorrhage profuse after delivery. Transferred to hospital on second day and died same day. General peritonitis. Postmortem examination revealed rupture of bladder and transverse rupture of uterus.

CASE XIX.—*Traumatic Rupture.*—C. N. 3080. E. S., age forty, para-VI; at term. Total duration of labor three hours and thirty minutes. Membranes ruptured artificially in second stage. Hemorrhage profuse. Placenta previa centralis. Accouchement forcé, version and extraction. In manual dilatation, cervix gave way on left side, and it was evident rupture of uterus had taken place. Patient almost exsanguinated. Rupture extended through left side of cervix and lower segment upward into and through the left broad ligament. Hemorrhage checked by tamponade. Abdominal hysterectomy then performed. Patient stood the operation fairly well. Patient discharged in good condition on thirty-third day.

CASE XX.—*Traumatic Rupture.*—C. N. 409. B. J., age thirty-five, para-VIII; at term. Duration of second stage not known. Total duration of labor 120 hours and forty minutes. Membranes ruptured spontaneously in first stage. Patient in the care of a midwife for all this time. She was finally brought to the hospital in poor condition. Shoulder presentation, podalic version and extraction. Profuse hemorrhage after delivery. Laceration of uterus discovered on left side extending upward into broad ligament and into peritoneal cavity. Abdomen opened and uterus removed without cervix; hemorrhage and condition improved steadily for twenty-four hours, then sudden collapse and death.

CASE XXI.—*Spontaneous Rupture.*—C. N. 2804. H. L., age thirty-four, para-VII; at term. Duration of second stage three hours. Pains very strong. Total duration of labor fourteen hours and thirty minutes. Midwife on case. Membranes ruptured spontaneously in second stage. Lying-in Hospital doctor called in. An encephalic monster; head born, shoulders caught above brim. Patient in state of moderate collapse. Moderate hemorrhage. Extraction completed with aid of blunt hook. On examination of uterus, it was found to be ruptured. Uterine cavity then packed with gauze. After stimulation and infusion, patient was transferred to hospital. Large rent in uterus on left side extending vertically up into the broad ligament and through into the peritoneal cavity for about half the length of the uterine body, tearing open the base of the bladder and stripping off the peritoneum from the anterior surface of the uterine body for one-third its extent. Hysterectomy performed, but before the organ could be removed the patient died.

CASE XXII.—*Spontaneous Rupture. Justominor.*—C. N. 2787. M. M., age thirty, para-III; at term. Second stage three hours. Total duration of labor ten hours twenty-eight minutes. Membranes ruptured prior to arrival of Lying-in Hospital doctor at beginning of second stage. Patient found in state of collapse. Profuse hemorrhage. Version and extraction. Craniotomy on after-coming head. Uterus then found to be ruptured in both lateral attachments of broad ligaments and whole anterior vaginal attachment torn off. Wound packed with gauze. Patient rallied somewhat under stimulation and was sent to hospital. Hysterectomy performed; considerable shock from operation. Patient recovered, and was discharged on fifty-first day.

CASE XXIII.—*Traumatic Rupture.*—C. N. 1700. A. G., age eighteen, para-I; at term. Second stage, four hours fifty-three minutes. Total duration of labor fifty-two hours fifty-three minutes. Membranes ruptured spontaneously during first stage. Brow presentation; version and extraction; still-birth. After delivery patient showed signs of collapse. On vaginal examination a tear in the uterus, beginning at vaginal vault and extending almost to fundus on left side, was discovered. After delivery patient was transferred to hospital and admitted in condition of profound shock. After stimulation, hysterectomy performed. Good recovery made and patient discharged on twenty-seventh day.

CASE XXIV.—*Spontaneous Rupture in Scar of Operation for Amputation of Cervix.*—C. N. 23417. S. K., age thirty-eight, para-IX; at term. Duration of second stage not known. Total duration of labor twenty-seven hours. Membranes ruptured spontaneously early in first stage. History of amputation of cervix, double hernia with Alexander's operation two years ago. When first seen by Lying-in Hospital doctor, patient was having considerable hemorrhage; moderate shock. Complete laceration of uterus at utero-vaginal junction transversely posteriorly, with tendency of intestines to prolapse. Uterus and laceration packed with iodoform gauze. High forceps, and dead fetus delivered. Patient became pulseless and was infused. General condition improved for a time, but died later of hemorrhage and shock.

CASE XXV.—*Spontaneous Rupture. Contracted Pelvis.*—C. N. 23350. R. D., age twenty-nine, para-VII; at term. Duration of labor not known. Membranes ruptured before arrival of Lying-in Hospital doctor. Pulse 124; patient extremely weak. Rupture of uterus diagnosed. Abdomen at once opened and child, which was in abdominal cavity, extracted. Tear extended from broad ligament of one side to the opposite broad ligament transversely and anteriorly, dividing the cervix from body of uterus. Right broad ligament was infiltrated with blood, the two layers of broad ligament being dissected apart. Amputation of uterus at the utero-cervical junction. Patient did not recover from the shock and died six hours after operation.

CASE XXVI.—*Spontaneous Rupture. Contracted Pelvis.*—C. N. 21167. M. M., age twenty-four, para-II; at term. Duration of second stage unknown. Total duration of labor eighteen hours twenty minutes. Membranes ruptured spontaneously during first stage. When seen by Lying-in Hospital doctor, there was profuse hemorrhage and severe shock. Child in abdominal cavity. Pulse imperceptible. Rent in uterus low down in lower segment almost transverse, nearly entire width of uterus out into left broad ligament and around to the posterior surface of the uterus. Abdominal hysterectomy immediately performed. Patient's condition at end of operation very poor. Did not respond to treatment. Gradually grew weaker, and died five hours after operation.

CASE XXVII.—*Spontaneous Rupture. Contracted Pelvis.*—C. N. 3267. C. S., age thirty-four, para-VII; at term. Duration of second stage not known. Total duration of labor twenty-three

hours forty-five minutes. On arrival of Lying-In Hospital doctor, patient was suffering from marked shock; pulse 150; hemorrhage profuse. Examination revealed a deep laceration extending through cervix and lower zone into left broad ligament and through into peritoneal cavity. With great difficulty a still-born child was delivered by version and extraction. Operation lasted five minutes and caused little shock to patient. Peritoneum washed out through wound, many clots coming away; wound packed with iodoform gauze. The further progress of case was of steady dissolution. Stimulants were used, but no reaction took place, and the patient died thirty-six hours after delivery.

CASE XXVIII.—*Traumatic Rupture.*—C. N. 1198. H. S., age thirty-six, para-VI. Duration of second stage not known; duration of labor not known. Delivery podalic version. Membranes ruptured artificially, second stage. Patient had been bleeding for twelve hours rather severely before arrival of Lying-in Hospital doctor. Had been under care of two private physicians. Diagnosis was that of placenta previa. Patient extremely weak, lips white, and all symptoms of acute hemorrhage. After delivery of child and placenta, hemorrhage ceased. While attempting to extract placenta, coil of intestine was encountered, revealing a moderate laceration through the cervix and lower uterine zone posteriorly. Uterus and vagina tamponed. Shock was severe, patient rallied under medication for a time, but died at the end of thirty-six hours.

CASE XXIX.—*Spontaneous Rupture. Contracted Pelvis.*—C. N. 3314. T. L., age twenty-three, para-II. Second stage, four hours and fifty minutes. Total duration of labor twelve hours and thirty minutes. Membranes ruptured artificially in second stage. Visited by Lying-in Hospital doctor (attending). Pains unusually severe at this time. House surgeon instructed to return in an hour and deliver with forceps if advance were slow. On his return he found presenting part had receded and funis prolapsed; pain had ceased; woman in collapse. Version performed and still-born child delivered. Transverse rupture found in lower uterine segment; no hemorrhage. Uterus packed with gauze. The condition of patient seemed to be one of improvement up to the fourth day, but she died suddenly on this day from heart failure.

CASE XXX.—*Traumatic Rupture.*—C. N. 7263. F. G., age forty-one, para-XV; at term. Duration of second stage not

known. Total duration of labor not known. Membranes ruptured before arrival of attendant. Considerable hemorrhage second and third stage. Case seen by Lying-in Hospital doctor one hour after beginning of second stage. Cord prolapsed, pulsating feebly. Version performed and child delivered; still-birth. While giving douche after the delivery of placenta, a rupture was discovered through the cervix on left side and up through the left broad ligament into peritoneal cavity. Uterus and vagina were at once tamponed. Pulse 120. Patient passed into state of collapse after operation, but rallied somewhat during night and continued to improve up to fifth day, when temperature ranged from 101° to 102.5°; pulse became more frequent and patient showed signs of sepsis. Death occurred on sixth day after gradual rise of temperature. Pulse became imperceptible and rapid increase of symptoms of sepsis.

CASE XXXI.—*Probable Traumatic Rupture.*—C. N. 173. L. W., age twenty-four, para-III; at term. Duration of second stage eight hours and thirty-seven minutes. Membranes ruptured artificially at end of first stage. Contracted pelvis; hydrocephalus; skull perforated. Version and extraction. Birth of child was followed by profuse hemorrhage. On examination uterus was found to be ruptured; manual extraction of placenta performed with great difficulty. Patient stimulated and wound packed with iodoform gauze. On following day patient was transferred to hospital; condition at time of admission fairly good. Pulse 140. Hysterectomy performed. Rupture found to extend from base of left broad ligament across the lower posterior uterine zone to the right broad ligament and through the right side of cervix. Temperature varied from 100° to 104 1/2° during first two weeks. After this temperature fell to normal and wound healed rapidly. Patient discharged on forty-sixth day after operation in good condition.

CASE XXXII.—*Probable Traumatic Rupture.*—C. N. 877. M. W., age thirty-three, para-VIII; at term. Duration of second stage seven hours thirty minutes. Membranes ruptured artificially two hours after beginning of second stage. Flattened pelvis. Prolapse of cord; attempted high forceps; unsuccessful; podalic version and breech extraction. Patient began to bleed actively. A vertical rent four inches in length was felt to exist in right side of body of uterus in lower segment through the cervix. Patient transferred to In-door Service immediately after delivery. Condition of extreme shock. Stimulants administered

and hysterectomy performed. After operation symptoms of severe shock prevailed. Death on third day.

CASE XXXIII.—*Traumatic Rupture.*—C. N. 29628. R. B., age forty, para-IX; at term. Hospital was called to case by outside physician who gave following history: Woman went into labor twelve hours (?) previously and had been attended by midwife, who, when the labor did not progress to her satisfaction, summoned to her assistance two outside physicians who gave the woman chloroform and applied forceps. This procedure was carried out for six hours, during which time the patient was given chloroform many times. Woman found with uterus in tonic contraction, vulva swollen and edematous. Pulse very weak and rapid. Head of fetus above brim. Cervix, four and a half fingers' dilatation. There was but little external bleeding. Patient rapidly became weaker, finally became pulseless, and died undelivered.

Diagnosis.—Rupture of uterus and bladder, found to exist after death. The rupture involved the lower uterine zone, anteriorly and transversely.

CASE XXXIV.—*Spontaneous Rupture. Contracted Pelvis.*—C. N. 20365. S. E., age thirty-seven, para-VIII; at term. Duration of second stage not known; total duration of labor not known. Membranes ruptured spontaneously early in second stage after strong bearing-down pains for several hours. The patient suddenly became quiet, complained of pain and tenderness in abdomen; she began to bleed actively; pulse became weak and rapid. Vagina packed and stimulation administered by Lying-in Hospital doctor. Woman in state of collapse. After short time, podalic version and extraction were performed. Two hours after delivery temperature 98.6°, pulse 130, patient gasping for breath. Hand introduced into vagina; passed directly into abdominal cavity. There was found to exist a complete laceration of the uterus, through the cervix, the right broad ligament and the lower uterine zone anteriorly. A laparotomy was at once performed, a supravaginal hysterectomy being performed. Discharged on fifty-fifth day, cured.

CASE XXXV.—*Spontaneous Rupture. Deformed Pelvis.*—C. N. 18686. S. W., age thirty-two, para-VI; at term. Duration of second stage not known. Total duration of labor fifteen hours and fifty-five minutes. Lying-in Hospital doctor arrived in second stage. Midwife in charge of case for over four hours stated that patient had been having good strong pains. Soon after the

doctor's arrival pulse suddenly became rapid, pains ceased, and patient went into state of moderate collapse; some hemorrhage. Forceps applied and head delivered with great difficulty. General condition at this time very poor; pulse 140, irregular and very weak. Examination showed rupture of uterus through lower uterine zone anteriorly and transversely, extending down through the right side of the cervix, involving also the anterior vaginal wall. Laceration packed with iodoform gauze, saline intravenous infusion. Preparation made for hysterectomy, but operation postponed as patient's condition seemed hopeless. Woman died at 10 P. M. of the same day.

CASE XXXVI.—*Traumatic Rupture.*—C. N. 4297. T. M., age thirty-four, para-IV; at term. Second stage not known. Total duration of labor eighteen hours. Membranes ruptured before admission. Brow presentation; contracted pelvis. Version attempted by outside physician; not completed. On admission uterus somewhat tonically contracted; version completed. Extensive rupture of uterus into and through broad ligament found to exist. On opening abdomen there was found to be in left broad ligament a laceration extending almost to fundus uteri on that side. Hemorrhage profuse; finally controlled after loss of an enormous quantity of blood. Vagina packed with gauze after removal of uterus. Patient was in very poor condition after operation and died within an hour from shock following loss of blood.

CASE XXXVII.—*Probable Spontaneous Rupture.*—Mrs. A. G., age thirty-seven; multigravida; started in labor October 12, 1906. The pains continued weak and far apart until October 15, when they became very severe. A midwife was called in. At 2 A. M., October 16, as the patient was making no progress despite her frequent and severe pains, two physicians were called in. The diagnosis of rupture of the uterus was made, and the child delivered by version.

At 9 A. M., October 16, the patient was removed to the hospital in very fair condition. There was but little hemorrhage; pulse 100 and strong. The uterus was fairly well contracted. There was a longitudinal rupture through the left side of the cervix, the left broad ligament, involving the lower portion of the uterus.

The patient was taken at once to the hospital and a panhysterectomy performed. The patient stood the operation fairly well. Convalescence proceeded satisfactorily, and the

patient was discharged on the twenty-eighth day after operation.

The time of the rupture of the membranes could not be determined.

CASE XXXVIII.—*Spontaneous Rupture with Transverse Presentation.*—Mrs. A. G., Applic. No. 25871, para-III, age thirty-two, was admitted to my service at the hospital, July 12, 1909. She was in severe shock and was bleeding moderately but continuously. The patient had been delivered on the Out-door Service. She had been in labor with ruptured membranes for many hours before notifying our staff. When first seen by one of our physicians, she was found to have a transverse presentation, with one arm protruding from the vagina, and with the cord prolapsed and pulseless. There was considerable bleeding and a fair degree of shock. The child was easily delivered and the uterus and vagina tamponed. The patient was then transferred to the hospital to my service. A laparotomy was performed, as the tamponage did not seem to control the bleeding. There was an extensive transverse rupture at the utero-vaginal junction, involving the lower section of the inferior zone and tearing away the anterior leaf of the left broad ligament, opening up the left uterine vessels. The bladder was badly macerated and could not be satisfactorily repaired. The uterus had to be removed. The pelvis was lightly packed with gauze and the abdominal wound closed. The operation was rapid with but little extra loss of blood. The patient, however, succumbed a few hours later, from shock more than from hemorrhage.

CASE XXXIX.—*Spontaneous Rupture, Simple Flat Pelvis.*—Mrs. A. M., C. N. 10107, para-II; was sent into the hospital from the Out-door Service with the diagnosis of rupture of the uterus. Patient was taken to the operating-room at once. She was in very fair condition. An abdominal panhysterectomy was performed. The patient made an uneventful recovery. There was a simple flat pelvis. After a long labor, with severe pains, there had been a sudden cessation of these, accompanied by great abdominal distress. There was little hemorrhage, but the pulse became rapid. A version was performed and the child extracted. On introducing the hand for the version, the operator found a vertical rupture on the left side, involving cervix, broad ligament, and extending well up toward the fundus. After the

version, the uterus and vagina were packed and the patient transferred, as stated above, to the hospital.

CASE XL.—*Probably Primarily an Instrumental Rupture.*—Mrs. M. B., C. N. 11294, age twenty-seven, para-III; was in active labor, under the care of two outside physicians, for over thirty-six hours before entering hospital. Forceps had been tried repeatedly. On admission, she was in a state of marked shock, and died soon after, undelivered. There was a wide rupture of the uterus on the left side, extending both vertically and transversely on the anterior wall. Both child and placenta were free in the general peritoneal cavity; the latter also contained many foul-smelling blood-clots. There was a moderate contraction of the pelvis.

CASE XLI.—*Flat Generally Contracted Pelvis; Spontaneous Rupture in Cesarean Section Scar.*—Mrs. B. A., C. N. 11607, age twenty-five, para-III; had a generally contracted flat pelvis. The first labor was instrumental; the second was a Cesarean section. When admitted at the present time, was again in labor. Had been having pains for a few hours; the membranes were unruptured; the cervix only slightly dilated. A Cesarean section was decided upon again. On opening the peritoneal cavity, a number of blood-clots and some fresh blood were found in the lower portion of the abdomen. On inspection of the uterus, the cause of the clots was discovered in a beginning rupture, in the line of the former Cesarean section wound. The rupture was at the lower angle, was of moderate size, and through this opening the membranes were seen bulging out. The Cesarean section proceeded as usual. Uneventful recovery.

CASE XLII.—*Spontaneous Rupture in Cesarean Section Scar.*—Mrs. B. G., C. N. 11372, para-IV; was admitted to my service at the New York Lying-in Hospital on December 10, 1907. Patient had been delivered in 1904 by Cesarean section because of a flat rachitic pelvis, after a labor of thirty-six hours, with the cervix admitting three fingers. A long abdominal incision was made, extending below the umbilicus. A longitudinal incision was made in the uterus. The uterine wound was closed with three layers of suture—the first two of chromic gut, the last of plain catgut.

In 1906, a second Cesarean section was performed by Dr. Lobenstine, as the child was much too large to be delivered through the natural passages. The abdominal incision was shorter and higher than in the first Cesarean section. The

incision was made well up in the fundal region, but was somewhat longer than usual, as the presentation was a breech with prolapsing feet, thus necessitating a version from above. The uterine wound was closed in three layers as in the previous instance, but plain catgut was used throughout. The scar of the first operation was not noticed at this time. Recovery was uneventful.

Present History.—The patient was brought to the hospital in a condition of extreme shock. She was found to have a ruptured uterus—the rupture having taken place at least eighteen hours before. On admission, the abdomen was markedly distended. The fetus could be plainly felt. The entire abdomen was exquisitely tender. Vaginally, the cervix was found to be soft, 2.5 cm. long and slightly dilated. No presenting part could be felt. The pulse was barely perceptible. The patient looked as if she would die at any moment. Rapid preparation was made for an operation; with the beginning of the operation an intravenous saline infusion was given. The peritoneal cavity was opened through an incision 10 cm. long, the incision extending both above and below the navel. The child and placenta were found free in the peritoneal cavity and were at once removed. The uterus lay in the posterior part of the abdomen and was opened up vertically from the internal os to the fundus along the anterior wall. The rupture was through one of the Cesarean section wounds, and was so extensive that the whole uterus was flattened out. A supravaginal hysterectomy was done, all blood-clots removed, a gauze drain was passed down through the cervix and a second one brought out through the lower angle of the abdominal wound. The wound was closed rapidly in three layers. Dry, sterile dressings were applied and the patient was further treated for shock and hemorrhage. The pulse at the end of the operation had improved under the saline infusion.

The patient did surprisingly well after the operation. She recovered rapidly; for the first seven days her temperature never rose to 100° F., while the pulse ran between 90 and 100. She was to sit up on the eighth day, but at this time she contracted a lobar pneumonia of the right side. The process was a severe one and caused her death eight days later, that is, the sixteenth day after operation.

On examination of the specimen, there was an *undilated cervix* and the uterus was opened up from the internal os to fundus, along one of the Cesarean section scars. To the right of

the rupture was seen the high scar of the other operation. Had the patient entered the hospital as she had been advised to do, before or at the beginning of labor, this seeming accident could have been avoided. Inasmuch as the pelvis was severely contracted and the cervix very rigid from never having been dilated above 4 cm., the uterus gave way at its weakest point, which was evidently the lower angle of the Cesarean scar.*

CASE XLIII.—*Traumatic Rupture.*—Mrs. G. D., C. N. 8099; age twenty-five, para-II; was admitted two days postpartum, to the hospital. Patient was in very bad condition. The face was pinched; the pulse very rapid; the abdomen distended and tender. She had been delivered by a version for transverse presentation.

After admission, a laparotomy was performed at once. There was some free blood in the peritoneal cavity. There was a vertical rupture extending up into left broad ligament through the left wall of the uterus. A panhysterectomy was performed. The patient died the same day.

Diagnosis.—Transverse presentation; delivery by version.

CASE XLIV.—*Traumatic Rupture.*—Mrs. J. K., C. N. 6096, para-II; had been in labor for many hours before admission. An outside physician had attempted forceps without success. Patient's condition was very poor. The diagnosis of ruptured uterus was made (as probable). The child was delivered by an internal podalic version, and the after-coming head perforated, as the child was dead. On palpating the interior of the uterus, it was discovered to be badly ruptured on the left side, with a vertical laceration. The condition was so bad that nothing could be done but a tamponage of the uterus and vagina. Patient died a few hours later.

CASE XLV.—*Spontaneous Rupture. Generally Contracted Pelvis.*—Mrs. Q. A., C. N. 4860, age thirty, para-V, twins; was admitted to the hospital in desperate condition. Face pinched and pallid; pulse 150 and of poor quality. One child had been delivered by the patient's physician, but the second child, being a shoulder presentation, he had been unable to deliver. In the hospital, this second child was easily delivered by version, and it was then discovered that a rupture existed which extended across the lower zone anteriorly and up into the folds of the left broad ligament. A laparotomy was at once performed. Much free blood was found in the peritoneal cavity.

* Rep. JOURNAL of OBSTETRICS, July, 1908.

A supravaginal hysterectomy was carried out. The raw surfaces were closed in.

The patient died a few hours later.

CASE XLVI.—*Spontaneous Rupture. Moderately Flat Justominor Pelvis.*—Mrs. C. P. Patient a multipara with a moderately contracted pelvis. Her former labors had all been difficult, and in the present labor she failed to notify the staff until she had been in labor many hours. When first seen, about 2:30 P. M., there was considerable bleeding and the patient pretty well exhausted. She was seen by an attending surgeon about 4:00 P. M., who found that there was a small complete rupture of the uterus, running transversely through the anterior wall. He decided to do a version at once. Having done this with considerable difficulty and having extracted the child, it was found that the tear now extended high up at the left side through the left uterine vessels. Uterus was at once packed and patient sent into hospital. The patient was in shock, pulse 120, hemoglobin 50 per cent. There was moderate bleeding from the uterus. Abdomen was very tender. Hysterectomy was at once done. In this case the small stump of cervix that was left behind was closed over with peritoneum without any pelvic drainage; which procedure we believe, as a rule, is unwise. The peritoneal cavity was washed out with normal salt solution and the abdominal wall closed in three layers. The patient rallied considerably and gave us some hope of living. However, she passed away on the fourth day as a result of shock, anemia, and low-grade infection.

RUPTURE AT THE UTERO-VAGINAL JUNCTION, WITHOUT ACTUALLY INVOLVING THE UTERUS.

There have been only three cases in our series of this condition. In numerous other instances the vaginal vault was opened, but in each instance there was more or less destruction of uterine or cervical tissue, so that they could not be classified under this heading.

CASE I.—*Traumatic Rupture.*—Mrs. F. F., age thirty-five, C. N. 6269, para-VI; all labors had been difficult. Patient admitted in labor, having been in the care of an outside physician who had tried to perform a version. Forceps had also been attempted unsuccessfully. She was in bad condition. The pulse was rapid and feeble; the color bad. There was moderate bleeding. *The pelvis was markedly contracted.* The child was dead.

It was delivered with some difficulty. The uterus and vagina were tamponed with iodoform gauze. There was a large opening into the general peritoneal cavity through the posterior vaginal vault. The patient died forty minutes after delivery.

CASE II.—Mrs. A. L., C. N. 4799, age thirty-five, para-VI; was brought to the hospital five hours postpartum. There was found to be a wide rupture of the vaginal vault posteriorly, opening into the general peritoneal cavity. A large coil of intestines presented in the vagina. There was moderate bleeding; the cervix was not torn. The intestines could not be replaced satisfactorily from below. A laparotomy was therefore performed, the intestine drawn up into place and thoroughly irrigated, and the opening in the posterior vaginal vault sutured. The abdominal wound was closed.

Recovery uneventful.

CASE III.—*Traumatic Rupture.*—Mrs. R. K.. C. N. 8662, age thirty-five, para-IV; was admitted to the hospital still undelivered. She had been in labor for two days; forceps and version had been unsuccessfully tried by outside physician. In the hospital a craniotomy was performed. On removal of placenta, intestines were felt with the exploring hand. There was found to be an extensive rupture at the utero-vaginal junction. An immediate laparotomy was performed. The uterus was found to be torn away from its attachment to the vaginal vault for three-fourths of its circumference. The uterus was quickly removed, and the pelvis lightly packed with iodoform gauze. Abdominal wound closed. Patient discharged on forty-first day.

RUPTURE OF THE VAGINAL VAULT.

Ruptures of the vaginal vault without damage to the uterus are seen most frequently in transverse presentations and as the result of trauma with forceps or other instrumentation. The relative frequency of involvement of anterior and posterior vaginal vaults may be seen from the following figures, viz.:

Hugenberger gives an equal percentage.

Stschotkin reports thirty-six posterior ruptures and twenty-four anterior, while Kauffmann gives the relation as thirty-two posterior to twenty-three anterior.

v. Winckel believes very ardently in the theory that transverse presentations becoming impacted are responsible for a large percentage of these tears. Kauffmann showed in his figures that 30 to 40 per cent. of vaginal vault ruptures were due

to transverse presentations. Stschotkin found that 15 per cent. were dependent upon this cause. On the other hand, Knoblauck found that only 8.25 per cent. of his cases occurred in transverse presentations; Kormann, 11 per cent., and Trask in 5.25 per cent.

Probably many cases are due not directly to the abnormal fetal presentation, but to the version or other manipulation necessary to deliver the child.

The essential point of interest lies in the fact that, in these cases which occur spontaneously, there is usually a very great overdistention and overstretching of either anterior or posterior vaginal vault. This occurs in faulty presentations of the fetus, with more or less pelvic contraction. Hand in hand with the overstretching of the vaginal vault goes, of course, the thinning-out and stretching of the lower uterine zone. In some cases the rupture occurs at the vaginal vault; in other cases the lower uterine zone is involved. If, however, the lower uterine zone does not rupture, we must believe with v. Winckel, Schröder, and Veit, that the lower zone is, in such instances, more or less protected by both the round ligaments and the broad ligaments with their hypertrophied connective-tissue framework. The pelvic contraction is usually of a high grade.

INCOMPLETE RUPTURE OF THE UTERUS.

Incomplete ruptures of the uterus occur less often than the complete. Brenneke gives the proportion as eight to 100; Sauvage, in an assembled list of 167 cases of ruptures of the uterus, found eighty-seven complete and fifty-eight incomplete ruptures; Marx reports forty-six incomplete and 181 complete from the literature. In the Lying-in Hospital series there have been twenty-nine incomplete ruptures and forty-six complete (with three ruptures of vaginal vault).

An incomplete rupture may occur in any portion of the uterus. The most common type, in our experience, has been the longitudinal laceration through one side of the cervix, through the lateral vaginal fornix, and up into the broad ligament. In the severe cases, the tear involves more or less of the lower uterine segment, opening up either the main uterine vessels of the side involved or one of the branches only of the uterine artery. The next most common type of incomplete rupture has been a transverse one through the cervix into the utero-vesical space. The incomplete ruptures that occur higher up in the uterus are not as serious and are less common. The incomplete ruptures

may be either traumatic in origin or spontaneous. When due to traumatism, we find that they are caused by: 1. accouchement forcé; 2. forceps; 3. version; 4. extraction of after-coming head; 5. embryotomy or craniotomy; 6. rubber balloons. The rapid artificial dilatation of the cervix is undoubtedly the most common traumatic cause of an incomplete rupture. The severest lacerations, I believe, are seen where the Bossi dilator is used to its full extent. Dilatation for "placenta previa centralis" gave the greatest number of such lacerations in our series. In our list of twenty-nine incomplete ruptures, there were thirteen cases of placenta previa, in which the laceration was due either to the dilatation or the extraction of the after-coming head. There were 6 cases due to the rapid dilation in eclampsia and version. In these cases, the tear probably started during the dilatation and was extended by the after-coming head being drawn too forcibly through the remaining cervical ring. In five cases the rupture was due to a hasty delivery in the presence of a violent "accidental hemorrhage." In the remaining five cases the rupture seems to have been spontaneous in origin. The normal cervical tissue, although thinning out more and more during the progress of labor, will yet stand a great deal of stretching. But there comes a time when even the normal tissue gives way in the presence of faulty engagement of the presenting part in the cervical ring, as in a transverse position of the fetal head. *The more frequent cause for the spontaneous origin is old scar tissue in the cervix proper or in the vaginal vault.* In our list of twenty-nine cases the rupture occurred in the left side in fifteen cases; on the right side in ten cases, and anteriorly in four cases.

MORTALITY.

In the forty-six cases of "complete rupture" of our series there were thirty-four deaths, giving a mortality of 73.9 per cent. In the three cases of rupture of the vaginal vault there was one death, giving a mortality of 33 1/3 per cent. In the twenty-nine cases of "incomplete rupture," there were eight deaths, or a mortality of 27.5 per cent.

The gross mortality, then, in our list of seventy-eight cases was 53.8 *per cent.*

It should be mentioned, however, that the cases that died with "*incomplete rupture of the uterus*" were suffering from either placenta previa centralis or eclampsia, both of which have in

themselves a fairly high mortality. Our mortality rate in "complete rupture" was high (the average in the recent literature being about 60 to 65 per cent.), but we believe that we can honestly claim that practically all of such cases that have come under our care have been of the severest type with but little chance of life.

FETAL MORTALITY.

The fetal mortality in the series of forty-six complete ruptures was 83 per cent.

In the three ruptures of the vaginal vault the mortality was 66.6 per cent.

In the twenty-nine cases of incomplete rupture the mortality was 52 per cent.

The total fetal mortality was 70+ per cent.

TREATMENT. PROPHYLACTIC.

1. Have the patient in as good physicial condition as possible at the time of labor.

2. Be aware in time of the presence of a deformed pelvis; of pelvic tumors; fetal anomalies, and the like.

3. Remember the *dangers of a prolonged dry labor.*

4. Do not allow the *second stage* to be *prolonged*, particularly if the uterine contractions are very severe.

5. Do not be *too speedy* in the dilatation of the cervix when doing an "accouchement forcé." Remember the ease with which the cervix in a "placenta previa centralis" can be torn.

6. Do not *perform or even try a version in a "tonic-uterus," or one that is rapidly becoming tonically contracted.*

7. Do not apply forceps with a rigid rim of cervix still present.

8. Every Cesarean section case in a subsequent pregnancy must early be warned of *possible danger* at the time of labor, if not under proper supervision.

9. Finally, ever keep in mind the danger-signal—the warning symptoms of an impending rupture. When they develop, deliver at once in the safest manner for the mother.

TREATMENT AFTER THE OCCURRENCE OF THE RUPTURE.

(A). *Treatment of Ruptures of the Vaginal Vault.*

These cases, if the diagnosis of the extent of the laceration is correct, can in most instances be treated by tamponage with or without sutures. In case intestines or omentum give trouble, an

immediate laparotomy should be undertaken with either total or partial closure of laceration. In rare instances the uterus is torn away so extensively that it has to be removed.

(B) *Treatment of Incomplete Ruptures.*

Nearly all such cases are best treated by firm tamponage with or without sutures. A laparotomy is rarely indicated and only then when hemorrhage persists despite the conservative treatment. After the tamponage, pressure may be exerted—for several hours, if necessary—from above. At times it may be advisable to lessen the blood supply to the pelvis by pressure on the abdominal aorta.

There are cases of "incomplete rupture" in which the tear simply opens into the broad ligament *without* involvement of the lower section of the cervix. In such cases a tamponage of the broad ligament may be impossible. The uterus and vagina should be packed and counterpressure exerted from above. The broad ligament hematoma may have to be opened later, either from above or from below.

(C) *Treatment of Complete Ruptures.*

(a) The child should be delivered *at once*, providing it is still "*in utero*," in the presence of a bad rupture, with great shock or hemorrhage or both. If, in these cases, a laparotomy can be done at once, on the spot, without the transference to a hospital, it should be performed. Where this is not feasible, we believe that better results will be obtained by tight tamponage of the uterus and vagina rather than by removal of the patient to more convenient surroundings.

(b) On the other hand, if the diagnosis is made early in the presence of a comparatively mild rupture, with the child still in the uterus, there are two methods of procedure, namely: 1. If the *child is alive*, and if the mother is in fairly good condition, she should be transferred very carefully at once to a hospital, where an immediate laparotomy should be done. This offers the best prospects for both mother and child. 2. If the child is dead and the mother in fairly good condition, we can deliver at once in the simplest manner, and treat the rupture by "tamponage," if we think this method will answer; otherwise, we should perform a laparotomy *at once, on the spot.* If we are not willing to run the risk of having to operate at the patient's home, we should, as in (1), transfer the case *before delivering.* The writer cannot urge this point too strongly, for the delivery

of the child after the uterus has ruptured will probably increase the size of the tear, thereby increasing the amount of shock and hemorrhage and increasing the dangers of transportation.

(c) If the child and placenta are free in the peritoneal cavity, a laparotomy is practically always necessary. Here, again, if the patient is in extreme shock, if any procedure is attempted it should be done at once on the spot.

(d) Where the diagnosis of rupture is first made *after* the delivery of the child, if the rupture is not extensive and the shock and hemorrhage are not great, it may seem advisable merely to use a carefully applied tamponage with or without partial suturing.

Should a laparotomy be decided upon, we may: 1. simply irrigate the peritoneal cavity and drain through the laceration (having, of course, removed the child and placenta); 2. we may suture the rupture, according to the method of Zweifel; or, 3. we may perform either a supravaginal or a panhysterectomy, and drain from below.

In all of our cases in which a laparotomy was performed, it was found necessary to remove the uterus (excepting in the case of the Cesarean section that recovered) either because the bleeding could not otherwise be controlled or because of the tremendous destruction of tissue. Should the patient recover from her shock and hemorrhage, we must always fear the development of peritonitis or a general sepsis.

Although the abdominal operation was often of no value, still the mortality in the twenty-nine cases operated upon was reduced to 62 per cent.

A vaginal hysterectomy can be performed, but this, too, is rarely, in our opinion, advisable, owing to the difficulties presented by the great damage resulting from the rupture.

The general treatment for the hemorrhage and shock should be given at once.

The vital question is, of course, shall we perform a laparotomy or shall we rely upon tamponage and drainage. Although there is a great deal to be said on either side of the question and although there are statistics in favor of each standpoint, I believe, nevertheless, that with improved technic, the best results will be obtained with an abdominal hysterectomy (or suture of wound when possible), excepting in (a) clean cases with relatively small amount of trauma, with hemorrhage controlled by packing, and (b) bad cases with marked shock.

In the former the abdominal operation will seldom be necessary, while in the latter the operation can be of little value. Real success will come and, I believe, can only come to those operators who see their cases at the actual time of the "rupture" or very soon thereafter. Transportation of the patients in extreme shock materially decreases the chance of a recovery.

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DISCUSSION.

DR. E. GUSTAV ZINKE, Cincinnati.—Dr. Lobenstine deserves the gratitude of the Association for the manner in which he has presented this important subject. I have no adverse criticism to make, but, on the other hand, wish to compliment him upon his paper. It is a splendid presentation of a difficult problem. While I was a little surprised at the great number of cases of rupture of the uterus during labor which have occurred in New York, I admire the candor, straightforwardness, and fearlessness of the report. Time is too short to touch upon every point brought out by the author. I shall only try to emphasize a few points of practical importance.

Rupture of the uterus during labor, from purely obstetric causes, should not occur in the hands of one who knows obstetrics. Causes such as a badly healed uterine wound of a former Cesarean section, a myomectomy, a kick, a bullet, a stab, or the horn of a mad steer are not within the obstetrician's prophylaxis. But rupture of the uterus due to delayed labor, the result of an obstruction which the child encounters in the pelvic passage, should be wiped from the record. Knowing the doctrine of narrow pelvis as it is understood now, and the application of the new management of these cases, no man has a right to carry a patient to the verge of rupture of the uterus during labor. The clinical picture which surrounds and characterizes the threatening danger is so well marked and so strikingly impressive that no man can possibly overlook it. A woman in a long second stage of labor should at once create suspicion and apprehension of this frightful accident. He who has studied his patient carefully will know in advance whether he has trouble to look for. He will be on his guard, and watch for the symptoms indicative of this dire calamity. As soon as the first stage of labor is completed and the presenting part refuses configuration, and a ready entrance into the pelvic cavity, the first danger signal is given. It means that before the completion of the second stage of labor the lower uterine segment, the cervix, will be subjected to an excessive degree of attenuation. In due time the uterus consists of two distinct parts—the lower or dilating portion, the cervix; and the upper or contractile portion, the body of the uterus.

The line of demarcation between the two uterine segments gradually becomes so well marked upon the abdomen that, in some

cases, it can be plainly seen across the lecture-room. Sometimes it shows obliquely, sometimes it appears transversely, all depending upon the character of the obstruction and presentation. And with it all comes the impressively characteristic behavior of the patient. Hours of suffering have already passed. She now becomes very restless and refuses to be consoled. The pains are no longer interrupted but continuous. Her features express profound distress, serious alarm and the gravest apprehension. She feels and knows that she is threatened with an awful calamity, the nature of which she does not comprehend. She holds her hands firmly to her sides and nervously tosses from one side of the bed to the other. An examination reveals the fact that the presenting part is still above or within the pelvic brim. Externally may be felt through the thinned-out lower segment of the uterus the extremities or even the body of the child; through the prominent upper and contracted portion of the uterus, nothing can be felt. Between the two segments the contraction ring is apparent to the eye as well as to the touch. Even now the patient's temperature may still be normal, and the pulse but little accelerated. The pelvic soft parts are yet moist and free from special tenderness; but the Ultima Thule of safety has been reached.

The impending danger may yet be averted by a prompt delivery. In some instances, if there is sufficient molding of the presenting head and the pelvic cavity is not too narrow, the forceps may answer the purpose; in case of faulty presentation of the child, a careful version may relieve the threatening situation. But it must not be forgotten that, unless the greatest caution is observed, either procedure, the forceps as well as version, may precipitate the disaster which we wish to avoid. Embryotomy is indicated if the life of the child has been seriously compromised. If the contraction of the conjugate at the brim is not less than 8 cm. and the child living, a hebosteotomy is indicated. If the contraction is below 7.5 cm. and the child alive, abdominal Cesarean section will give the best result.

If there is no relief, if the patient is permitted to go on, both pulse and temperature begin to rise, the pelvic soft parts become tender and dry and, before long, a loud heart-rending cry, followed by all the symptoms of shock and internal hemorrhage, will announce the fact that the catastrophe, rupture of the uterus, has occurred. If the rupture is complete the presenting part disappears and another is substituted for it. If the rupture is incomplete, the scene is not so stormy, the presentation remains unchanged, but becomes free and movable.

The essayist has well described what should be done in cases of rupture of the uterus, and I will not occupy the time of the Association by repeating what has already been said.

Permit me to relate my first case of rupture of the uterus. I was then in practice about five years, and had several hundred cases of confinement to my credit, among them cases of placenta

previa, eclampsia, version, and difficult forceps deliveries, all terminating with very satisfactory results. I began to believe myself a great obstetrician. On a hot July day, at noon, a man importuned me to come to his house. His wife was in labor; he thought she was dying. He stated the doctor in charge of the case had left two hours before, promising to return. At any rate, something was seriously wrong, and he begged me to go with him. The family lived in a three-story tenement house. The rooms were small, crowded with furniture and sympathizing women. The windows were open and flies swarmed about by the thousands. The atmosphere was stifling and vitiated. The patient was lying on a low bed, soiled with blood, urine, and fecal matter and, apparently, in a dying condition. Her features, pale and pinched were covered with cold perspiration. Pulse not perceptible. Temperature subnormal. The abdomen was excessively distended and very tender to the touch. It was impossible to make a satisfactory examination. The patient unconscious, the husband and by-standers ignorant of what had happened, no information could be obtained.

An examination revealed both feet in the vagina. I took hold of them, and, what was most natural, began to pull, the child readily responding to the traction. The trunk and arms were promptly delivered; but the head refused to be born. The reason for this was discovered later. Just at this juncture the attending physician entered the room, and, when he saw what I was doing, exclaimed: "Hello! Did you turn?" My answer was: "No indeed! I found the feet presenting at the vulva." "Well," said he, "I would have sworn it was a vertex presentation when I saw her first." How significant! This alone plainly spelled, rupture of the uterus. Neither of us understood, however, and it was not until the head of the child was severed from its body, that we realized the import of it. Introducing my hand for the purpose of "fixing" the head to deliver it with the blunt hook and forceps, loops of small intestines fell into my palm. It was easy now to make a diagnosis. A deep sense of mortification came over me and I was convinced that, after all, I was not much of an obstetrician.

It is needless to say, the patient died promptly. Postmortem section showed a large, longitudinal tear on the left side of the uterus. What consoled me at the time was the fact that I was called after the rupture had occurred and that the unfortunate patient was doomed and dying when I arrived upon the scene. I have not had to deal with a rupture of the uterus of this kind since; but this case never has been forgotten and I have been, when dealing with a narrow pelvis or other obstruction in the second stage of labor, constantly on the lookout for the contraction ring and a sudden change of presentation of the child.

Two cases of rupture of the uterus, due to Bossi metal dilatation, have occurred with me within the last six years. Both were cases of placenta previa; one at the end of the sixth, the

other near the end of the seventh month of gestation. In both instances the tears were quite extensive but incomplete. Prompt delivery was easily effected in each case, because of the laceration. The rents were stitched up with catgut and both mothers recovered. It is impossible for me to speak in praise of rapid metal dilatation in cases of pregnancy at or near term.

DR. EDWARD J. ILL, Newark, N. J.—I have been much pleased with Dr. Lobenstine's paper, and also with Dr. Zinke's description of the contraction ring of Bandl. I was a student of Dr. Bandl at the time he studied the contraction ring, and Dr. Zinke has spoken so well that he has taken the impact out of what I expected to say. There is one point, however, I wish to speak about, and that is rupture of the uterus produced by forceps placed on the nonretracted cervix. Let us make a distinction between two conditions. A dilated cervix is by no means a retracted cervix. The forceps, as a rule, should not be put on the fetus until the cervix is retracted. It is an old rule, but little followed. I have seen two ruptures into the broad ligament and separation at the pubic arch on a single morning, because high forceps had been applied at an improper time. When such injuries occur the woman never gets well. They recover, so far as life is concerned, but they are always sick, and no operation can get them well when atrophy of the cellular tissue has followed it, which is a common result. This is one of the things that everybody ought to know who does obstetrics. We ought to speak of it in strong terms every time we see a case, and rehearse it as often as we see deep cervical tears reaching up into the broad ligaments. The artificial dilatation either with the hand or with instruments usually means the same thing—deep ruptures into the cervix and possibly into the broad ligament.

I am very glad Dr. Zinke spoke as he did regarding the Bossi dilator. When I was abroad a few years ago in the clinic of one man I had occasion to see two of these cases, and both of them had tears into the broad ligaments. I repeat again, these rapid dilatations usually mean rupture of the lower part of the uterus.

DR. LOBENSTINE (closing the discussion).—I will not detain the Association any further except to thank Dr. Zinke and Dr. Ill for their interesting remarks. What Dr. Ill said with regard to the application of forceps is very true. They certainly are responsible for a tremendous amount of damage.

In closing, I desire to thank you all again, and the president, Dr. Humiston, particularly, for the opportunity to be here with you to-night.

SOME PHASES OF PUERPERAL SEPSIS.

REPORT OF A CASE OF PUERPERAL PERITONITIS; OPERATION WITH RECOVERY.

BY
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RECENT literature teems with articles on puerperal sepsis: "Solving the Problem of Obstetrics," as reads Zinke's title of a forceful demand for better midwifery. The unabated morbidity and mortality attending on obstetric cases in private homes, stands a lone vestige of the past. The boon of antisepsis and asepsis, as brought to bear on these cases when confined in hospitals, has reduced the maternal morbidity and mortality to the low percentage achieved in all other branches of surgery. The multiple traumata more or less invariably inflicted upon the maternal parts involved in childbearing, makes this practice essentially a surgical one. The rigid demands of modern surgery must find application here. The hospital movement of modern times will not have achieved its acme, until these cases are provided for. In all other specialties, cases having a surgical import are being insistently taken to the properly appointed hospital.

The relative disavowal of midwifery by those seeking a specialty, has left this paramount branch of medicine without the ardent espousal and beneficent activity that has characterized the recent growth and usefulness of all other divisions of medicine. The long, uncertain hours, the troublesome course of these cases, their interference with the practice of other kinds of cases, make this part of the practice undesirable, not to say loathsome to the general practitioner, to whom now falls the vast majority of these cases. What is not essayed with love and intentness, goes by default! As negative testimony of this result stands the sparse contribution to the literature of this subject by general practitioners. Let it become the rule that these cases are taken to hospitals. Create maternity hospitals in every community, and at once the situation will change. The better results obtainable by the surgical cleanli-

ness of the hospital appointments, the trained and supervised nursing provided there, but more, the practical assistance and proxy always present in the case of an acute emergency in the persons of the hospital internes, will take from the practice of midwifery the features that go to make it unsought and abhorred.

This change, too, might make feasible again the specialty of joint obstetrics and gynecology. This oldtime natural and efficient association has constantly prevailed abroad where obstetric science has made its greatest advances. The present strenuous endeavor to bring medical education under state control and provision; in essence the incorporation of the medical colleges into the state or founded universities, will eventuate in the ultimate provision of proper hospital equipment and salaried professorships for all our colleges. This will make practicable the reassociation of the two branches in one chair. It is unnecessary here to state where the skill and daily experience of the gynecologist particularly dovetail into the needs of practical midwifery.

By present arrangement, what occurs when an obstetrical emergency arises? The practitioner in attendance calls in another general practitioner, no better informed nor skilled than himself. Reasonably enough, the gynecologist, who avowedly has discarded obstetrics, is called upon fewest times, and then oftenest too late for succor to the patient. No doubt the obstetric mortality is owing much to the inavailability of obstetric consultants in our communities.

There may be grounds of expediency that will aid in the solution of this problem. The surgeon to-day is no longer observant of the domain of the genecologist, but extends his practice also to gynecologic cases. In turn it may come to pass that the gynecologist to sustain his specialty and his practice, may be driven again to take up jointly with gynecology the cause and practice of obstetrics. It may be here noted, that the parturient woman in European countries fares less well, than does the American. The practice of obstetrics there is left almost entirely with the midwife. She is less educated and prepared than is our trained nurse. At times of distress, the midwife calls into the case the general practitioner who at best has but little experience even in ordinary obstetric cases.

The writer's review of recent obstetric publications comprises some twenty articles by home and foreign writers. The

recognition of a differential pathology and diagnosis; and scepticism and conservative use of remedial measures, are the dominant features of this literature.

Practische Ergebnisse der Geburtshilfe and Gynaekologie, vol. i, Part I, contains three articles of special merit to which the writer desires to refer those interested in this subject. They are: Veit—Die Uterus Extirpation bei Puerperalfieber; Fromme—Diagnosis und die Behandlung der acuten diffusen Peritonitis puerpralis; Frankl—Practische Ergebnisse der Serologie fuer die Geburtshilfe und Gynaekologie. Brief reference only to these articles and a few others shall be had here, and more particularly pertaining to puerperal peritonitis.

All kinds of pathogenic bacteria have been found in peritoneal exudates, aerobic and anaerobic, though special clinical significance attaches to the streptococcus. Bacteriologic research as yet is insufficient to make clinical differentiation possible. Infection of the endometrium with virulent streptococci at once causes depression of systemic resistance. The disease extends by the bloodvessels or by the lymph-channels, or by both courses. In extension by the bloodvessels alone, the peritoneum becomes only rarely involved—namely, when in pyemia there develops periphlebitic abscess and extension of infection to the peritoneum.

Frequent and more grave is a streptococcic infection which goes along the uterine lymph vessels, especially of the fundus. These reach the peritoneum directly. Besides peritonitis in these cases, general infection and sepsis result. Microscopic preparations plainly show streptococci streaks in broad bands throughout the uterine musculature; less frequently they are found within the bloodvessels. The muscle cells are edematous, and lie separated by round cell infiltration. The great virulence of the germs is manifest clinically in the early days of the puerperium—second, third, or fourth day—by chills, high temperature, rapid pulse, general torpor, or euphoria. The peritoneal symptoms follow within twenty-four to forty-eight hours. Uterus is found well contracted, possibly tender to pressure over its lateral margins. The lochia reveals little macroscopic change; microscopically long chains of streptococci are found. These germs possess hemolytic property.

If the infection—by streptococci or other bacteria—is less virulent, the spreading of the bacteria through the tissues is impeded, and the extension goes by way of the tubes. In some

cases, the abdominal ostia of the tubes become agglutinated, or intestines lie to and become adherent. This may prevent peritoneal invasion or limit it greatly. This form of infection in most instances has revealed the diplostreptococcus of Walther, which Fromme holds is identical with the nonhemolytic streptococcus. High fever in the early days results from inflammation of the endometrium. With the involvement, later, of the tubes, the peritoneal symptoms appear, generally at the end of the first, or beginning of the second week. They may not appear until the woman is about and apparently well for some time.

A third possibility for the occurrence of peritonitis, arises from the discharge of pre-existing abscesses, as when a pyosalpinx, or a parametric abscess ruptures. Another cause for peritonitis is given when the uterus or vagina is perforated and germs have direct communication with the peritoneal cavity. In this form have been found various bacteria—namely, streptococci; gonococci associated with other germs; staphylococci; the pyocyaneus; pneumococci; and colon bacillus. The beginning of peritonitis caused by rupture of a pyosalpinx or parametric abscess into the abdomen is announced by collapse, great sharp pains, vomiting, fear, cold sweats, accelerated breathing and rapid heart's action.

The peritonitis following perforation of the vagina or uterus is of more gradual development, unless highly virulent streptococci are involved. The latter type of peritonitis is attended with less pronounced local symptoms. Pain, pressure tenderness, bloating, may be obscured by the systemic and psychic depression. The muscular rigidity and tenderness of the recti, peculiarly manifest in the type of peritonitis caused by the colon bacillus, are often not found in the streptococcus peritonitis. The abdomen often remains soft for a long while. The exudate, too, in the peritoneal cavity in this form is less obtrusive, and its presence by percussion elicited less easily. The bowels in this form retain mobility longer, shift with change of position of body. Vomiting in perforative peritonitis is immediately present. Where the process comes up slowly and develops gradually upward, vomiting and meteorism follow the progressive agglutination and paralysis of the intestines. The vomitus at first looks normal. It gets to be bilious and feculent in appearance and odor, as the bowel contents are held back a longer time and retroscend. Admixture of blood makes the vomit black and indicates septic hemolysis.

As the meteorism from intestinal paralysis and distention increases, the tympany further obscures the detection of exudates. Toxins and bacteria leave the bowel and by osmosis are taken up in the blood. In virulent streptoccus peritonitis, the meteorism and intestinal retention of contents are commonly less present; even diarrhea may prevail. The temperature, ordinarily high in peritonitis, in bad cases of streptococcus infection may be low or subnormal. Many times the rectal temperature in these cases will register high, when the oral is normal or even subnormal. The pulse is always frequent in diffuse peritonitis, not singly in relation to high temperature; it is markedly frequent from the beginning in streptococcus peritonitis, showing the immediate grave involvement of the vasomotor centers by the bacteriotoxins.

Fromme and Heynemann found serious puerperal fever invariably associated with hemolytic streptococci. Nineteen out of thirty-six cases of normal puerperia revealed streptococci in the vagina, none of which showed hemolytic property. All cases died where hemolytic streptococci were found in the blood. Fromme concludes that the hemolytic streptococci found in the vagina are not pathogenic. The hemolytic, *i.e.*, pathogenic germs are carried into the uterus from the lower vagina or from without. Heynemann admits that now and then hemolytic streptococci are found in puerperia having light fever, or no fever. However, when these are present in the blood or in peritoneal pus, the prognosis is bad. Fromme presupposes the occasional existence of hemolytic streptococci in the vagina of normal women, and he attempts differentiation between hemolytic non-virulent and hemolytic virulent streptococci by the capability of the non-virulent to grow upon red blood-corpuscles, while the virulent can not do so at all or in much less degree. Henckel disavows infections from pre-existing vaginal bacteria. Puerperal infection is owing to inocculation from vulva or lower vagina.

The invariable use of the curet in puerperal cases to assure against the retention of placental remnants, until recently almost universally taught and still much practised, has been attended with baneful consequences in many cases. Such, and similar experiences, with many remedies indiscriminately applied to a disease of variable origin and anatomical location, has naturally produced the revulsion to all kinds of therapy that is apparent in the attitude and expressions by many writers of the day. The old empirical teaching that

meddlesome midwifery is noxious, receives fulsome emphasis. The broadcast application of single remedies, at a stage when fine differential diagnosis is not possible, has certainly been harmful. By the side of this a nihilism in therapy such as is declared by Mermann, is hopefully virtuous. Mermann reports seventy-three cases of puerperal infection which received practically no treatment, with results as good and better than in cases where various active treatments were employed.

Watkins, in a sane and valuable paper, "The Treatment of Puerperal Infections," (AMER. JOUR. OBST. AND DISEASES OF WOMEN AND CHILDREN, September, 1909), discussed his experiences in sixty-one cases of puerperal fever. He deduces "that the systemic infection is much more important than the local infection" and "that the systemic treatment is much more important than the local treatment"—"that there is more danger of doing too much than too little"—and "that the energetic local treatment generally used is more dangerous than the infection." Watkins properly limits strictly the exploration of the uterus to cases of uterine hemorrhage and offensive uterine discharge, and abstains where there is parametric disease. He prefers packing of the vagina to promote spontaneous expulsion of retained placenta, to digital or instrumental removal of same, even where foul discharge and fever are present. In this demand he goes one point further. In cases where packing is unsuccessful in twenty-four hours, a second packing is used, irrespective of fever or pulse. Watkins refers to the cow, in whom often the placenta is retained unduly long. This becomes infected and offensive. Yet it is finally expelled spontaneously about the ninth day, seemingly without ever ending in death to the animal.

It may be questioned whether the parallel drawn is mete. If permissible, the fact warrants the deduction that at worst, a let-alone policy at all stages of obstetric practice has superiority over a course of routine therapy. The observation is suggestive of much more than can here be entertained. Watkins places his reliance in the treatment of puerperal infection largely upon the building up of increased physiologic resistance, having employed it to the exclusion of all other measures in thirty-one of his sixty-one cases. Very interesting in this report is that exudates were treated expectantly, and found in the vast majority to absorb spontaneously. One case, with extensive exudate involving the right broad ligament, tube and ovary, and the appendix, was subjected to abdominal section at a time when the disease

seemed at a standstill. For fear of doing injury to the intestines, the abdomen was closed without attempting anything. The case made full recovery. Interference in these cases, before three weeks, that is, before the exudate is supposed to have become sterile, Watkins thinks, commonly makes conditions worse, resulting in secondary infection, and increased duration of illness, or death. Twice only was abdominal section done in this group of cases—namely, for intestinal obstruction and gonorrheal infection respectively. Out of six cases of suppurative peritonitis,—all fatal,—three were subjected to vaginal section. Watkins suggests that one of these might have recovered if abdominal section had been done instead of posterior colpotomy. There were no cases of septic thrombosis or pyemia encountered in this group of cases. There were altogether fifty-four recoveries and seven deaths; six of the latter having had suppurative peritonitis.

Quite in contrast with such papers, stands the relatively hopeful advocacy within the last years, of panhysterectomy for puerperal sepsis, by von Herff, and Henkel. Coming with such authority, this stand has induced Veit to give the matter critical consideration. Veit, in a most instructive revision and scientific digest of the subject, comes to quite different conclusions. "He who operates many such cases," Veit says, "in my opinion operates too often; he who has only recoveries, has operated needlessly, cases that would have recovered without; and he who can report only deaths, could have predicted this result before operating."

Veit puts stress on the important bearing the different kinds of fever-producing bacteria have on the indication for treatment and on the prognosis, notably, the difference between the putrescent germs and the different pathogenic germs, more particularly the virulent streptococci. Regarding the former, he maintains that hysterectomy undertaken in sapremic cases, like putrescent retained placenta, or gangrenous myoma, must be followed by recovery. That is, the prognosis is good by such procedure, but that the need for the operation is questionable. These germs grow only on dead tissue; to remove this dead tissue removes the disease. Exceptionally, Veit reluctantly admits, the placenta may have grown into the uterine wall, (placenta disseminata) or it is held in a deformed uterus (uterus duplex or bicornis) which may make its removal alone, without the uterus, impossible. In cases of gangrenous myomatous

uterus where the tumor cannot be removed *per vaginam*, the removal of the useless uterus he regards is clearly indicated.

Regarding the pathogenic group of cases, if bacteremia prevails, more particularly if streptococci are numerously found in the blood, hysterectomy is unable to arrest the disease and hence is unavailing. Fromme, in his comprehensive article comes to the conclusion that every puerperal peritonitis shall be operated as early as diagnosticated. Where bacteria are found in great numbers in the blood, the prognosis is bad and the operation will avail little more than to give some subjective relief to the patient which will justify it. Without operation, all cases of puerperal peritonitis are fatal. He cites cases where the infection by hemolytic germs may travel through the wall of the uterus (metrolymphangitis), without the germs gaining access to the blood-vessels and hence without germs appearing in blood examinations. These cases afford a bad prognosis. All other cases of peritonitis operated early hold out a fair chance of success.

CASE I.—Mrs. R. O. American, age twenty-nine, robust health. Menstruated at fifteen; always regular. Married ten years; one child nine, twins six years old; no unusual incidents. One miscarriage at two months one a year and a half ago, produced by professional abortionist. Chills and fever; full recovery. Dysmenorrhea in later years. Some leucorrhea since first birth; never chafing; no dysuria. Present illness began October 21, 1908. Patient, pregnant two and a half months, introduced a crochet needle into the uterus. This was repeated three days later when patient also took fifteen grains of quinine. Next morning uterine pains and profuse discharge of blood and clots. Foul odor from beginning; severe chills and fever. Physician curetted twice within two days, last November 1, under chloroform. Physician told friends, owing to unfavorable conditions at home of patient he had not succeeded as he should. He insisted upon immediate transfer of patient to hospital.

Patient was received in my service at the City Hospital, late in the evening of November 3, with the sensorium dulled by morphine. Patient complains of aching pains through hips, sharp pains and sense of fulness through abdomen, more marked below. Oral temperature 103.6, pulse 120 to 140. Abdomen distended, protuberant and tender. Foul, purulent discharge from vagina; retching and vomiting of muco-bile. This finding was reported to me about midnight. Directions were given by telephone—namely, low Watkins injection; sodium salicylate

grains xxx, spirits camphor gtt. ij, normal salt solution oz. four by rectum, low, 105° F. Repeat hourly, five doses; then every four hours, with increase of normal salt solution to 16 ounces; hot vaginal soda douche, followed by lysol one-half of 1 per cent.; soda water copiously by mouth while retching continues; ice bag over lower abdomen; strychnia one-thirtieth grain hypodermically. I saw the patient early the next morning. Oral temperature 101.2, rectal 103.1; pulse variable as to volume and rhythm, 120 to 140. Sensorium clear, though excited. Patient said she felt better. Euphoria. Skin yellowish, slightly moist. Tongue moist, moderate white coating. Abdomen greatly distended; hard; tender to gentle touch, more below umbilicus; gentle pressure at various points elicited sharp pains; palpation and gentle percussion revealed highly distended, fixed bowels with varying resonance, at different points through lower abdomen. Vaginal touch revealed uterus low in normal anteflexion, distinctly outlined anteriorly, moderately enlarged, fair consistency. Posterior vault bulges toward vagina; parametria tender, somewhat boggy. Gentle attempt to move uterus called out pain. Moderate muco-purulent discharge, of foul odor. Watkins injection given the evening before, had brought fair amount of stool. Medicated enemata had been retained. Retching and vomiting continuous.

Diagnosis.—Septic endometritis and diffuse peritonitis. Exploration of uterus and abdominal section were decided upon. Chloroform anesthesia. Uterus was gently fixed with tenaculum forceps. Sound was easily introduced and confirmed the anteflexion previously diagnosticated. Internal length 3 1/4 inches. Tentative use of small sharp curet brought very little scraping; no particles of placenta. Carbolic acid full strength was applied to endometrium on uterine dressing forceps carring small swab. This was to be followed by swab dipped in alcohol. There was a slight catch when internal os was reached. To overcome this, the forceps was twisted a little, when the instrument, without force glided upward and backward, a distance of about 3 inches. This was followed by a gush of foul, dark serous fluid containing black clots of blood, possibly an ounce. Finally a swab of alcohol was introduced into the uterus without difficulty. It was evident that the forceps had before passed through an old perforation of the uterus and tapped a collection of putrid old blood and serum in the culdesac of Douglas.

The abdomen was now opened over pubes. All the viscera

below umbilicus were adhered together and were covered with exudate. Few adhesions were found higher up; here the intestines floated in purulent odorous serum. Separating the adhesions, pus in great quantities was encountered in various locations. Both tubes were found distended with pus. The fundus of the uterus, more at the right horn, was soft and malcolored, clearly indicating an abscess. At the site of the perforation in the culdesac was found malodorous, clotted blood and foul, heavy pus. The uterus at this part showed no infiltration or softening, that is, no evidence of pathogenic infection. A high supravaginal hysterectomy, including all the abscess region, and removal of both tubes was done. The tissues about the tubes and broad ligaments were found soft, friable, and bled freely. After all exudates were mopped up with moist gauze, extensive loose gauze packing was placed throughout pelvis and lower abdomen. The ends were led out at the lower angle of the wound. The rest of the wound was sewed in layers with catgut. One silkworm-gut was passed through all layers. The temperature fell at once. Barring the first night when it rose to 104.6, it rarely reached above 102° afterward. The pulse, during the first forty-eight hours was bad and required active hypodermic stimulation with strychnia and digitalis. Vomiting at once diminished after the operation, and ceased on the third day. At this time symptoms were ameliorated and recovery seemed likely. The rectal medication was continued every four hours for several days. Whenever the rectum became irritable, a low Watkins injection was given. This commonly discharged gas and feces and immediately afterward left rectum available for another medicated enema. The wound discharged copiously a foul sero-purulent matter for about ten days. The gauze packing was saturated with peroxide one to three times daily and removed in parts, some each day. It was eventually replaced by smaller wicks and tubes. Wound was closed and patient discharged December 29, fifty-five days after admission to the hospital. Patient recently has reported herself well as ever. Bowel function normal. Stump of uterus was found drawn some to left by contraction of left broad ligament; otherwise, pelvic conditions were found relatively normal.

Epicritically considered, we may assume that this patient became infected with the crochet needle. This developed an endometritis septica, from which resulted metrolymphangitis with localized abscess in right horn, and also extension of the inflammation to the tubes. Further, there was probable addi-

tional retention of placenta with sapremic infection. The efforts at curettage by the home attendant had resulted in perforation at the height of the internal os, followed by hemorrhage into the culdesac, and sapremic and pathogenic infection of this part of the peritoneum. By the repeated curettings was favored the extension of the infection to the fundal peritoneum and tubes. Thus the peritonitis probably arose from three sources—namely, metrolymphangitis extending directly to the peritoneum; tubular suppuration with discharge into the peritoneal cavity; and the perforation and infection through the upper cervix. Unfortunately no blood examinations were made. Probably it was a streptococcus infection though not of severest type. The robust health of the patient no doubt offered great resistance to the infection.

The partial hysterectomy, instead of panhysterectomy, was justified by the outcome. The writer thinks this procedure in such cases may be often found justifiable and preferable to complete hysterectomy. Less trauma, and less interference with innervation and circulation of the parts should have favorable influence in keeping up better natural local defensive function. The ultimate results after supravaginal hysterectomy are better, the writer is convinced, because the normal nervous and circulatory relations of this region, notably the bladder and rectum are retained more fully than after panhysterectomy. A few hours, at most days, would have resulted in gradual extension of the exudative peritonitis upward, grave sepsis, meteorism and death.

The presence of a clouded, nonodorous serum in considerable quantity in the upper abdomen was noted above. It certainly was striking. The bowels floating in this fluid were found not covered with exudate, and they showed no tendency to agglutination. The fluid was less purulent than that found below, and it had no foul odor. The writer has asked himself, may not such secretion be of another origin than that of the lower abdomen? An interesting observation of such a case by the writer dates back ten or twelve years. An infant of eight months was operated for diffuse appendiceal peritonitis. A gangrenous appendix bathed in foul pus was found thoroughly walled off from the rest of the abdomen. The rest of the abdominal cavity contained free, nonodorous, seropurulent fluid in great quantity, in which the intestines floated without exudate upon them, or adhesions. The child, contrary to expectation, made a most kindly recovery. Since then this condition was found repeatedly and pertaining

to cases that ran a good course. A case of recent observation has special bearing on this point.

A male, cook, aged fifty-nine, had an attack two weeks ago diagnosed as appendicitis by the home physician. After ten days, patient was transferred to the City Hospital. The visiting surgeon there, I am told, found no evidence of appendicitis. The trouble was all referred to an incarcerated umbilical hernia of small size. The hernia was accidentally reduced under examination. Operation for the hernia was advised. The patient not wishing this operation, left the hospital. The sudden return of tenderness and pain in the right inguinal region after a few days, caused the former attendant to be recalled. The patient was sent to another hospital where the writer saw him. Oral temperature 99.6, rectal temperature 101.2. Tenderness and tumefaction in retrocecal location. The umbilical hernia was easily brought out when patient strained. The hernial opening admitted bulb of index finger. No peritoneal involvement, more than about cecum, was detected. Operation for appendiceal abscess was advised and accepted. Upon request of the patient, the closure of the hernia at the same sitting was agreed to, though not without some hesitation.

On opening the abdomen at the site of the umbilicus, there unexpectedly gushed from the abdominal cavity a clouded, nonodorous, serous flood. This exudation was regarded with anxiety on account of the possible infection it might bring to the wound. Recalling my former observations when such conditions had prevailed, I decided to complete the umbilical operation. Next, an incision was made over the outer side of the cecum. A pocket of foul pus carrying within it the slough of the appendix was discharged. This pocket was perfectly walled off from the rest of the abdominal cavity. Cigaret drain. The subsequent course of the case showed a perfect healing of the umbilical wound though the other wound was slow to clean up and was not healed under three weeks.

From such observations, the writer feels warranted in concluding that a free peritoneal fluid surrounding an infected focal disease, which has no odor, and is unattended by exudate upon, and agglutination of intestines, indicates rather a reactive measure of nature to disease. Possibly this is not unlike the suppurative edema about an infected area in solid tissues. Its presence has a favorable bearing on the course of the case.

It indicates good systemic defensive powers. It may be it has antitoxic qualities and as such, might be found available for therapeutic purposes.

The writer has never before found hysterectomy indicated in any of his cases of puerperal sepsis or peritonitis. This is stated to show his stand in this question. Either the cases seemed not to hold out any hope by such procedure, being seen too late, when they were moribund; or, as was often the case, the medical measures and lesser surgical procedures seemed all sufficient and more properly indicated. Amongst this number were four cases of large sloughing fibroids during the puerperium. All these were relieved by vaginal operation without sacrifice of the uterus, and ultimate full recovery.

DISCUSSION.

DR. ALBERT GOLDSPOHN, Chicago.—It has always been a subject of much regret with me, that general practitioners do not seem to be educated by their teachers in regard to the difference in the pathology, in the gross anatomical conditions, between an ordinary gynecological curetment of the uterus, and the cleaning out of the puerperal septic uterus. It is most deplorable to see men use the same instruments for both conditions, and they frequently let a mechanic who never saw the inside of a woman design and construct this instrument for them. They then proceed to use that thing in the ordinary gynecological uterus where perhaps it won't do much harm, or even much good; but fearful damage may result by using that same small curet in the puerperal uterus. I have casually seen patients die inside of twenty-four hours after such curetting of a puerperal septic uterus. If any instrument is used in a puerperal septic uterus it should be a large loop curet that cannot wound the surface easily, or a good placental forceps, or both. These are capable of removing remnants of secundines, and do least damage to the remaining interior surface of the uterus. One ought not to use the curet in such a way as to draw blood, from any spot, if possible, except that part of the intrauterine surface on which the objectionable remnant of secundines is situated. But in recent times I have thought even this curetment of the most innocent kind, perhaps, not advisable, even if there be foul odor or the presence of saprophytic germs. The pathogenic germs do not make any marked odor, I believe. So odor, present or absent, does not mean much. I feel that in the future I will not scrape the uterus unless there is bleeding but, where there is simply a septic discharge, wash out the uterus as thoroughly as possible with a good double current douche tube, so as to get rid of the loose effete material, then pack the uterus with iodoform gauze, and in some cases I would introduce with this gauze a soft-rubber catheter to the

fundus, throwing an ounce of alcohol into the catheter every four hours during the succeeding few days.

DR. WALTER B. DORSETT, St. Louis.—One of our distinguished Fellows, I believe, has made this statement that "there is no premium on the practice of obstetrics." I think there is a great deal in those words, for the reason that the general practitioner takes obstetric cases on the same principle as the merchant who sells certain articles for less than cost. They carry it, as it were, as a leader in their business. In my work as judicial counselor of a certain district in my state I have visited county societies, and frequently I find some prominent men who do not attend these societies, and in asking for the cause of their absence I have been told that they are too busy with obstetric practice. I have said, "How much do you get for a case of obstetrics?" The reply has been that "if we get $10.00 we do very well." Some of them attend women at a great distance from their homes, sitting around all night long, if the case needs it, for $10.00. I said "why do you not charge more?" The reply has been, "because we cannot get any more. Smith and Brown do it for $10.00, hence I have to do it for $10.00." It is well known that if one does the obstetrics, he will do the family practice, and that is the reason for taking obstetric work at a low fee. And so it is the commercial side on which they look. I think physicians generally should charge more for their services in obstetric work, and when they do we will find more and better men paying attention to the practice of obstetrics.

I agree with Dr. Goldspohn in his declaration that there is not enough stress laid upon the difference between the gynecological uterus and the puerperal uterus, in the teaching of obstetrics and gynecology in the different medical schools. Out of 2,500 physicians practising medicine in the City of St. Louis, I do not know of but one man who does nothing but obstetrics. Usually obstetrics is done by the general practitioner, and by inexperienced men.

In the conduct of the cases I wish to express my belief that in the delivery of the placenta the ordinary practitioner is in too great a hurry. I have noticed this in my experience in hospital work where physicians come in who are well grounded theoretically, and yet when I observe them conduct a case of labor, as soon as the cord is severed they will make efforts to deliver the placenta. We know that a uterus which has contained an eight-pound child cannot contract immediately after the expulsion of the placenta; therefore, in the majority of instances, if the women were let alone for an hour, they would expel the placenta themselves. I believe this going after the placenta with the hand or with the curet, or with the placental forceps, does great harm. We are much more liable to introduce pathogenic organisms than if we let it alone.

When it comes to the selection of a curet, I believe the best curet to use is the placental forceps devised by our distinguished

Fellow, Dr. Longyear, which I have found to serve my purpose in every particular.

DR. J. HENRY CARSTENS, Detroit.—I agree with my friend, Dr. Dorsett, with reference to general practitioners doing obstetrics too cheaply. But how are we going to change the method? It is difficult to do so. If we were to attempt it the result would be likely to throw a great many cases of obstetrics into the hands of midwives, hence general practitioners are compelled to do this work cheaply. We are in a process of evolution, I might say, and it is only a matter of time when poor people will be educated to pay more than they do now for this work. Many will go to lying-in hospitals where they can be delivered safely and cheaply. As far as treatment is concerned there is no doubt in my mind the general practitioner has not been taught properly, and some of them have not grasped the modern principles of asepsis. When obstetrics is being practised by general practitioners who treat everything from anal fistula to ingrowing toe-nails, who treat cases of diphtheria or smallpox, and do all kinds of dirty work, whose fingers are more or less dirty, and cannot be kept clean, we cannot expect that branch of the healing art to be practised as well as it should be. General practitioners who do obstetric work should be taught to wear gloves. They should not examine a woman with their bare hands. And yet there are some men whose hands are always clean. A practitioner ought to have a clean pair of gloves in his pocket, even two pairs, in a sealed envelope ready to be used at any time. This is my method and I practise it all the time. In almost any case I put on gloves, not particularly to guard against infecting the patient, but to prevent my hands from becoming infected.

Every practitioner engaged in the practice of obstetrics ought to wear gloves, and then he will not have as much puerperal sepsis to deal with as now. We ought to teach that. Of course, gloves cost money, and it means a little work and trouble to keep them clean, which, of course, is one objection to their use. But we must show these men how to do this work. Puerperal sepsis is a complicated infection. I agree with the previous speaker that the uterus should not be curetted at all in cases of puerperal sepsis. If there is a piece of placenta left behind, that is a different thing. You can get it out with placental forceps or with a proper curet. If I have to deal with a case of puerperal sepsis not knowing beforehand exactly what the trouble is, or where it is, I regard it a good thing to clean out the uterus. I take a piece of gauze in preference to absorbent cotton, because it is harder and I can wipe out the uterus with it. If we wash the uterus until doomsday, we cannot clean the membrane out.

I believe with Dr. Morris that in dealing with these cases we ought to get into the uterus quickly, and get out quickly. We should wipe it dry, and when that has been done I take another piece of gauze, saturated with carbolic acid with which I swab out the whole interior of the uterus. I do that for the purpose

not only of killing the microbes, but I also do it to close up the raw surfaces, to close up the lymph channels, so that an eschar may form, that no more septic infection can take place inside of the uterus. There are two kinds of infection, one inside the peritoneum, and one outside, and there is a vast difference between the two varieties.

DR. ERNST JONAS, St. Louis.—For years I have been talking and writing about two kinds of infection after confinement. It is known to most of the American obstetricians that there are two kinds of septic infection, and these are the infections with peritonitis and systemic infections; but we overlook entirely that there is another infection which is by no means rare, and that is an infection which starts from the cervix and goes into the parametrium. It is a continuous infection, just as we have infections of the subcutaneous tissue in a finger, following some injury. This latter class of cases is like a kind of progressive phlegmon, but, if we examine them carefully, we will find frequently that these phlegmons have become localized, a localized abscess has followed, and by making our diagnosis properly, we can drain the abscess and cure the patient at once. The operation for these localized abscesses in the parametrium is simple. It is the same operation which I described for the removal of a stone in the ureter.

In this class of cases I, of course, do not do a combined intra- and extraperitoneal operation, but rather the extraperitoneal operation at the margin of the rectus muscle. This operation again is preferable to the extraperitoneal operation above Poupart's ligament, as it interferes less with the abdominal support. If we consider this class of cases we will find out there are some which come under the head of systemic infections that are really localized conditions, but which, with the consequent absorption, simulate the picture of a general systemic infection.

So far as the removal of the placenta is concerned, we should not remove it hastily. A foul odor does not mean much in this class of cases.

DR. WALTER C. G. KIRCHNER, St. Louis.—Those who have charge of hospitals, especially general hospitals, know that this class of cases comes up frequently. The author of the paper spoke of prophylaxis and our experience shows that the let-alone policy is one that ought to be carried out. Those patients that come to us after the child is born in the street or in the ambulance, and are placed in bed without any special attention being paid to them, get along best. On the other hand, the cases that are examined and tampered with become infected. The let-alone policy is the best to follow and our results at the city hospital have borne out the wisdom of this procedure.

Treatment of the conditions, I think, depends upon the diagnosis. Are we dealing with a septic endometritis, or has this process extended beyond the uterus? If this process is merely

confined to the uterus or mucous membrane, or if the placenta is the offending cause, the cavity of the uterus may be cleansed, as Dr. Carstens said, by means of gauze scraping. I think in these cases it can be done just as well by packing the uterus with long strips of gauze; when pulling it out by twisting the gauze the membranes and detritus are caught in the meshes, and in this way the uterus is cleaned. We often get cases that have been treated by carbolic acid and alcohol, but these patients have nearly always done badly. Perhaps it was the individual operator who saw and treated the patient first that led to the bad results, but our practice has been to do as little damage as possible. I doubt whether we accomplish what we intend when we use carbolic acid in these cases. This infection is often deep and cannot be reached by swabbing with carbolic acid. We have also seen many cases improve by continuous intrauterine irrigation with salt solution. This sort of irrigation gives nature an opportunity to throw off septic material, and when the saline is used hot the blood supply in this region is increased and the formation of protective adhesions is encouraged. If the infection extends and involves the tubes we have then a condition which we find in cases of pus tubes or pelvic abscesses. This process may become more or less localized and such cases will frequently get well if treated along the lines that we treat cases of pus tubes.

Another condition not mentioned is one which I think ought to be remembered—namely, systemic infection and how it is brought about. In certain of these cases, the uterus not only is involved, but the pelvic veins also, and then we have a pelvic phlebitis. A septic thrombosis ensues which feeds infection to the system. Therefore, it is our rule in these cases to make daily examination for bacteria in the blood. If there is a bacteremia, we know that we have then a special condition. In these cases we must differentiate as to whether there is a systemic infection, whether the uterus is involved, or whether the veins are implicated. If the uterus alone is involved, then hysterectomy may cure the condition; but if the veins contain pus, hysterectomy will be of no avail. If a bacteremia exists and the veins contain pus, at cure can only ensue by resection of the affected veins and drainage of the pus.

DR. H. W. LONGYEAR, Detroit.—There are two points in the paper which are especially commendable. One is the observation of the essayist regarding the difference between the pathogenic condition of the lower zone of the abdomen in these inflammations, and the nonpathogenic condition of the exudate in the upper zone. This is an exceedingly valuable observation and leads to a principle of treatment which is of great value, and that is, drainage below and hands off above. Especially does it teach us that it is only in the pelvic portion that we are to consider the treatment. The other observation is the one in regard to the infrequency of the necessity of performing hysterectomy in these

cases of infection. I believe it is only in rare cases that we should do hysterectomy. I have only performed it once, having only found one case where I thought it was necessary. Where there is a large amount of parametric inflammation, and the tubes are infected, I do not hesitate to resort to vaginal incision, opening the culdesac close to the uterus, and then drain. If I find, by digital examination, after making this incision, a soft fluctuating spot, I take the forceps which Dr. Dorsett mentioned, pass it in and perforate the abscess or abscesses, then introduce a tube and gauze through the incision, and these cases get well. I recall a case I had a little while ago over in Windsor, Canada, which I treated in the manner mentioned, and the patient made a complete recovery. Vaginal incision gives free drainage to the lymphatic system of the pelvis, which is a matter of much importance in these cases.

DR. WILLIAM A. B. SELLMAN, Baltimore.—I regret very much to hear a teacher like Dr. Carstens make the announcement or statement that he swabs the uterus, after childbirth, with carbolic acid. I agree that the placenta should be allowed time to be expelled, say twenty to thirty-five minutes. As a rule, by that time, uterine contractions come on again after the woman is a little rested, and nature attempts and in most cases succeeds in passing the placental mass.

There is one point to which I wish to call attention, and it is this,—when the placenta passes and the mass comes into the vagina, there it stops. Nature needs the assistance of the hand passed by the side of the mass, just up to the mouth of the uterus. You will find the mass of placenta will be expelled through the vaginal outlet, but there will be a shred of tissue still hanging out through the cervix. This is the point that the general practitioner fails to realize, and there must be nothing left behind that may decompose or form a point or focus of infection; so that if I get my hand above the placental mass, which has been expelled from the surface of the uterus, I do not believe in carrying my hand into the uterine cavity, but I assist the passage of the placental mass through the vagina, bringing it outside. Then I can grasp these little shreds of tissue which are hanging from the cervix, and by gentle traction secure the expulsion of them without the slightest tear or break. In my cases I do not swab the uterus. I do not go inside of the uterus, and I scarcely ever have a case of sepsis. I do not allow the use of any vaginal syringe for four to five days. Nature provides the best syringe and cleansing agent in the form of lochia. That lochia is of jelly-like consistence, and it protects the tissues from infection. So I think any interference with nature jeopardizes the prospects of a good recovery.

I do not endorse the swabbing out of the uterus, even with plain gauze or iodoform gauze, and the swabbing of it with carbolic acid I certainly deprecate, for the reason that carbolic acid is a cauterizing agent. It will do harm.

DR. ROBERT T. MORRIS.—I hope that what Dr. Sellman said last went in at one ear of every practitioner, and stuck in the other. This matter of tampering is a very important one. What could we do with our operations upon the perineum immediately after delivery; what could we do with our operations upon the cervix, and how could we hope for healing of extensive tears, if it were not for the lochia? The lochia is a protective fluid and better than anything we could use in all cases which have not been infected in some extraordinary manner. In the crowded tenements in New York we not only have bacteria, but things of larger size—yes, things that are three sizes larger than bacteria, yet people there have as many as fourteen children and no sepsis.

In regard to the moribund cases, Dr. Pantzer says that he does not believe in operating in moribund cases. We must be careful about that diagnosis. If a patient has bacteremia and we can determine it by a blood examination, that particular patient is moribund for sure, but there are many cases in which patients apparently moribund can be operated on and the uterus taken out. We can snap a pair of forceps on either side of it, quickly cut the uterus out, leave the forceps in place, then use intravenous salt solution, and it is wonderful how sometimes the entire features of such a case can be changed. One can do a four or five minute operation, have the uterus in the waste-basket, and in four or five hours see the picture changed very materially. As to the breeding of bacteria in the peritoneal cavity, the staphylococcus albus grows immediately upon the peritoneum in very many cases where the infection proceeds from the tubes and oviducts; but it is a protective process as against streptococcic infection, and infection by vibrios and a number of other bacteria.

DR. MILES F. PORTER, Fort Wayne.—I want to say a word or two with reference to this subject, and in the first place about the criticism of Dr. Sellman, as to what Dr. Carstens said, or what he thought he said. Dr. Carstens was talking about treating a dirty uterus. I know him well enough to say that he would not think of swabbing out a puerperal uterus with carbolic acid.

This term, puerperal sepsis, like the mantle of charity, covers a multitude of pathological conditions, and to attempt to talk on a method of treating puerperal sepsis would be equivalent to trying to talk on the treatment of all of the various forms of septic infection with which we have to deal. If there are multiple abscesses of the uterus we want to get them out. If there is bacteremia we want to avoid surgical interference. If, on the other hand, there is a sapremic condition, arising from putrefying or infective material inside the uterus, we must get that out as soon as possible. One of the best ways to get it out is to take a piece of dry gauze, sufficiently large to dilate the cervix, and wipe out the cavity thoroughly. With reference to the use of the curet, as a rule the best method of using it in the puerperal uterus, in my judgment, is not to use it at all. Let it alone. I think if we look upon a local infection of the uterus, as we do a local

infection surrounding an inflamed appendix, more of our women would get well. They would be lying-in less long, and recovery would be more prompt than it is under the notion that all of these infected uteri ought to be curetted and cleaned. If good drainage is provided, the majority of cases will get along nicely. The curet, as a rule, is an instrument which had better not be introduced into the uterus following labor.

DR. WILLIAM H. HUMISTON, Cleveland.—Since I have adopted the let-alone policy in treating these cases, except in those in which we have hemorrhage and evidence of retained placenta, my results have been much better in the hospital with which I am connected than they were before. We treat out-patients conservatively. We treat the general condition. We keep the vagina clean; use ice-bags to the abdomen and head; give whiskey, strychnia, and salines, and our results are good. These cases are in a low condition when brought to the hospital, and yet it is surprising how well they do on the above line of treatment. Our statistics are much better since we have adopted this method of treatment than they were by active interference. In a great many cases that come in pus has already formed in the culdesac or appendages, and the indications are for simple puncture and drainage. This can be done without a general anesthetic, and I use cocaine.

DR. HANNAH M. GRAHAM, Indianapolis (by invitation).—I would like to ask the members the advantage of position in this class of cases, or in permitting patients to sit up. I have in mind one particular case, in which I was called in consultation. I did not think the uterus had been entirely cleaned out, as the woman's temperature ranged from 103 to 104. The woman who was taking care of the patient was not a trained nurse. The patient was delivered during my absence from the city, and I was called in after I returned. I merely permitted the patient to sit up. As she was poor, and could not afford a trained nurse, I said I would run over every three hours or so and give her a douche of a very weak solution of bichloride, and let her sit up. This was about the third or fourth day after delivery. By adopting this position the uterus emptied itself, and the temperature on the second or third day went down to normal. Position seems to have been of some advantage in this case.

DR. PANTZER (closing the discussion).—I wish to express my appreciation of the attention given my paper. As the hour is late I shall abstain from further remarks.

I wish simply to emphasize the fact that in the absence of skilled obstetricians, or in the presence of a case that does not present a clearly defined differential diagnosis, a let-alone policy is the one ordinarily commendable. I had expected to be supported in the hope that a reunion of gynecology with obstetrics might occur in our country.

CALCAREOUS DEGENERATION OF THE FIBROID UTERUS WITH THE PRESENTATION OF A SPECIMEN.

BY

WALTER B. DORSETT, M. D.,

St. Louis.

(With one illustration.)

VERY little has been written on this subject of late. The older writers produced some literature which is interesting only so far as the rarity is concerned. Aside from difficulties that may be encountered in doing vaginal hysterectomies—namely, the bisection of the large fibroid and the ligation or clamping of the broad ligaments, it is not of interest now unless by its presence symptoms demanding operative intervention are presented. Such was the case in the instance that demanded the operation I am about to report.

CLINICAL RECORD.

Mrs. O.; age, seventy-four; nativity, United States. Social condition, widowed; number of children, four. Number of miscarriages, none. Principal symptoms: severe pain in the back, dragging sensation in the pelvis, and interference with the function of the bladder and rectum. Rectal tenesmus at times was very severe. Menopause at the age of fifty-six; bowels constipated; vaginal secretions, none; urination, painful and intermittent; urine analysis, negative.

On bimanual examination the uterine body could be moved about with great ease and when pressure with the vaginal finger was removed, the mass would drop downward in the lower pelvis and the mass then became wedged in between the rectum and bladder, thus explaining the interference with the functions of the bladder and the rectum. On account of her advanced age and general enfeebled condition the operation was done with more dispatch than usual, chloroform and ether being the anesthetics used.

On opening the abdomen the tumor was found lying loosely in the pelvis and unattached. On grasping the mass, the operator was reminded of the sensation usually imparted in the handling

of uterine fibroids with a long pedicle. A supravaginal amputation was done and the abdomen closed within a few minutes. The patient made an uninterrupted recovery and left the hospital within eighteen days, well and relieved of her distressing symptoms.

The ligation of the renal artery of the rabbit by Litten and his subsequent discovery of deposition of calcium salts in the renal

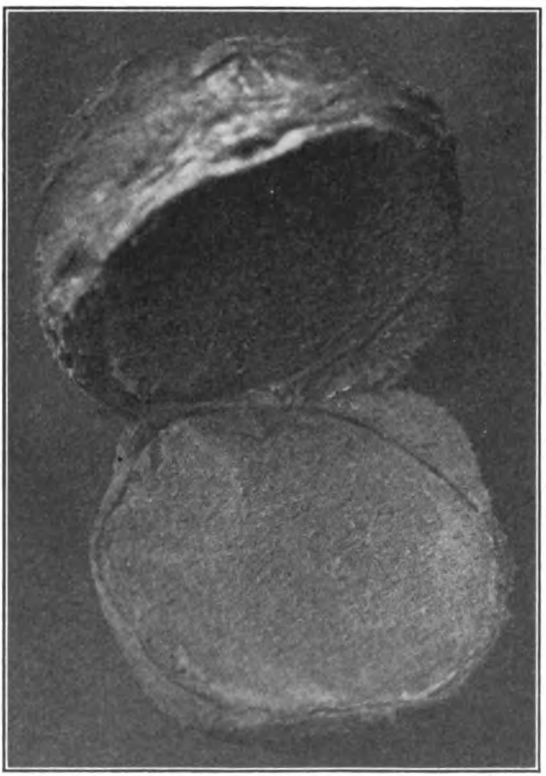

FIG. 1.—Calcareous degeneration of fibroid uterus (Sawn through center.)

tubules, probably proves that the true etiology of calcareous deposits lies in a retrograde process due to deficiency of blood supply. It can then be readily seen that during the normal atrophic changes in the uterus due to decreased determination of blood toward the uterus, degenerative changes are apt to occur.

The following cases have been gleaned from medical literature at hand:

CALCAREOUS DEGENERATION OF FIBROID TUMORS.

John N. Upshur, of Richmond, Va., records in the AMER. JOUR. OBST., 1881, xiv, 108–111, a calcified fibroid of the uterus removed at autopsy. In the October number of the AMER. JOUR. OBST., 1879, Dr. J. T. Everett reports the successful removal of a tumor of this kind with a plate of the specimen removed and makes the statement that a review of medical literature since the days of Hippocrates, shows but fifty-one cases and of these only thirty-three are well authenticated.

Dr. Gibb for Mr. J. T. Paul, November 15, 1859, reports in the proceedings of Path. Soc. Phila., 1860, a small bony tumor attached to the upper part of the uterus in a woman fifty years old who had never borne children.

In the AMER. JOUR. OBST., 1891, xxiv, 595, G. M. Edebohls reports three myomata extensively calcified removed by enucleation from the uterus of a widow, aged sixty-three, who menstruated until fifty. Three years later she noticed a hard lump in the lower abdomen which slowly increased in size with pelvic pain and pressure symptoms.

J. Neill, *Am. J. M. Sc.*, Phila., 1867, in v. lviii, p. 438, reports the case of an unmarried woman fifty-eight years old, who had noticed for fifteen years a swelling in abdomen; had no trouble until last five months; at death the tumor was six inches in diameter. The tumor surface was irregular, covered with patches, nodules and cysts containing mostly fetid pus, uterus impacted in the pelvis and adherent to additional morbid growths originating in the broad ligaments. It included several loculi or sacs containing greenish pus; walls were extremely hard and infiltrated with lime.

John Bostock, May 27, 1834, in *Med. Chir. Tr.*, Lond., 1835, tells of calculi discharged from the uterus during life. These were small bodies the size of a pin's head and larger, irregular and resembling decayed teeth, yellowish-white in color, hard, could not be cut. They were examined and found to contain phosphate of lime and a small quantity of the carbonate.

Dr. Robert Lee, in the same journal describes several cases and mentions one where a portion of the tibia of a chicken was found in the center. Hippocrates, Vesalius, Salius, Marcellus, Donatus and others tell of many wonderful cases of stones discharged from the uterus during life.

Charles P. Noble, Phila., in *J. Am. Ass.*, Chic., 1906, xlvii, 1881–1886, presents a paper entitled "A study of the degenerations

and complications in 2,274 cases, also a study of 4,880 consecutive cases in their relation to carcinoma and sarcoma of the uterus." Including 337 cases of the writer, Martin 205, Noble 337, Cullingworth 100, Frederick 125, Watt-Keen (Hofmeiers) Clinic 300, Hunner 100, McDonald 280, Lauwers 200, Eastman 117, Webster 210, Martin, F. H. 200, total 2,274 cases. Under the heading of complications and degenerations in 2,274 cases relative to the tumor and uterus he states that calcareous infiltration was present in thirty-nine cases or 1.7 per cent.; calcification of the ovary was present in one case. In Noble's 337 cases calcareous infiltration was present in seven cases.

In the Cyclopedia of the Practice of Medicine, edited by D. H. von Ziemssen, 1875, vol. x, Schroeder says: "Induration accompanied as it is by arrest of growth is followed by the deposit of the salts of lime. The presence of lime in irregular veins is first observed in the middle of the tumor, at a later period the deposit may be more considerable so it is difficult to saw through the tumor and maceration betrays the existence of something like coral formation; it is exceptional for the process to begin on the outer surface forming a shell. Calcareous degeneration occurs only in the subperitoneal and interstitial fibroids and is usually only met with in smaller interstitial tumors. Calcareous myomata which have been set free within the uterus have engaged the attention of physicians from earliest periods under the name of uterine stones. Hippocrates stated that a Thessalian maid sixty years old was seized with pains resembling those of labor after eating leeks and that a rough stone was extracted from the vagina. Salin tells of a woman delivered of a stone resembling a duck's egg in size and shape. Louis knew of eighteen cases of uterine stone. Velpeau, de Coze, Courty, Duncan, and Arnott tell of cases."

Saxinger reported a case in which the surgeon applied forceps and delivered a uterine stone the size of a child's head.

In Medico-Chirurgical Transactions xxiii, 1840, the story is told of a stone of fifty pounds which tore the rectum by its own weight on the occasion of a fall. In the museum of pathological anatomy at Erlangen is a large submucous fibroid measuring 13 inches by 8 1/2 inches in diameter, which has become so calcareous throughout that a piece of the tumor which has been sawed out and macerated, simulates the structure of a coral. The specimen was furnished by Dr. Bohn, of Gunzenhausen, the fibroid weighed 24 1/2 pounds and was taken from the body of an unmarried

woman sixty-one years old, who never bore children and who died of marasmus. She first noticed it when about thirty years old. It lay in a sacculated portion of the immensely distended abdominal walls, between the upper portions of the thighs inclining particularly to the left side.

Gusserow, in Cyclopedia of Obstetrics and Gynecology, 1887, vol. x, says: "Calcification is the last step in regressive metamorphosis; it forms a barrier to the further development of these tumors. Connective tissue impregnated with lime salts is an amorphous petrifaction and is composed of phosphates, carbonates and sulphates; they are frequently expelled, were formerly regarded as genuine calculi and were supposed to have originated like vesical calculi. We sometimes meet concretions in the vagina having some foreign body as a nucleus as, for example, bone, pessary and the like, thus resembling vesical calculi, but stones from the uterus are probably calcified fibromata. Avieta Candura discussed various conditions favorable to the formation of true calculi, asserting that the employment of hard water was particularly noxious in this respect. Calcification usually affects the connective tissue of the tumor and, therefore, we often find concentric strata of lime salts traversing the tumor irregularly, but in the main following the course of the bundles of fibers. Rarely, we find that the outermost layers of the tumor or connective tissue capsule alone are affected. When the connective tissue components of the tumor become calcified the interspersed muscular elements are prone to undergo degeneration, as is often observed. As calcification is most frequent during the climacteric these processes are probably influenced to a great extent by the condition of the vessels of the uterine wall. The more the nutrient vessels of the tumor atrophy the greater the extent to which they are affected by atheromatous degeneration, and the more readily will calcification develop. Both small pedunculated as well as large interstitial growths are found calcified. Turner maintains that the constitution of the pedicle and the condition of its vessels are factors of prime importance in this respect, but adduces no evidence in support of his view. Large tumors may become calcified. In older literature the subject of calcification was sometimes held to be ossification, but the formation of bone is not met with in this connection."

G. Brown Miller, Chap. xv, in Boveé's Gynec., 1906 Edit., says "calcification of the tissues of fibroids leading to the formation of

womb stones at times occurs, usually with increasing age. They are usually composed of the carbonates and phosphates of calcium and may be of considerable size."

Chapter xvii, 1907 Edit., Webster. "In rare cases a deposit of lime salts is found in fibroids especially in the pedunculated growths with narrow pedicles and in the detached tumors. Such transformed masses have long been known as womb stones. They are rare in interstitial growths and very uncommon in submucous polypoid tumors. They are most frequent in women of advanced age. The change is associated with imperfect blood supply to the tumor and is usually preceded by more or less fibrous transformation. Calcification may begin in the peripheral layers of a tumor, a complete shell being sometimes formed in this way, or it may begin in various points throughout the tumor."

Dudley, 1902 Edit., "Calcification occurs most frequently in subperitoneal tumors both large and small. The process may be general or local and may pertain to the fibrous septa or to the capsule. Exceptionally the entire tumor is displaced by lime salts and converted into a stone, the so-called womb stone. Such stones sometimes take a high polish. The whole arrangement of the fibrous septa and capsule will then appear reproduced in the lime salts and will identify the tumor. More commonly the spaces between the septa do not calcify but disappear by some other degenerative process. This gives the calcified part a porous wormeaten appearance or coral-like formation. When calcification is chiefly or wholly in the fibrous capsule the tumor is covered by a thin hard crust which closely resembles the fetal skull." This writer cites a case where in removing a tumor from the corpus uteri it felt so much like a fetal head through the peritoneal and subperitoneal structures, that he almost abandoned the operation.

Ellice McDonald, M. D., *J. Am. Ass.*, 1904, xlii, 1344 (May 21), and *Albany M. Ann.*, 1904, xxv, 515–532. Complications and degenerations of uterine fibromyomata. A pathological and statistical study of 280 cases. In 788 cases, calcification was present in eleven cases. In 280 cases of fibromyomata there were hyaline and calcareous degeneration in eight cases; calcareous degeneration in fourteen cases; calcareous, necrotic, and hemorrhagic degeneration in two cases. Twenty-three examples of calcareous degeneration existed in old women, one being below fifty; they varied in consistence from those of the womb-stone

type, ten centimeters across, to those with discrete moderate calcareous deposits.

Noble, *J. Am. Ass.*, 1904, xlii, 1350, under an article relating to complication and degeneration of fibroid tumors completed to January 31, 1904, or 278 cases, calcareous degeneration was present in six cases.

Under the same head is an article by Dr. Mary Scharlieb and it also appears in *J. Obst. and Gynec.*, British Empire, 1902, vol. i, page 323. In 100 consecutive cases calcareous degeneration was present two times.

Dr. J. M. Withrow, *Cincin. Lancet-Clinic*, 1904, page 35, reports a case, widow, age fifty, one child. About eighteen years previous she thought that she was pregnant, no menstruation for three months, abdomen enlarged rapidly for seven months. The tumor was loose and soft. She took electrical treatment and under this the uterus decreased in size, and menstruation appeared regularly. Thirteen years ago she had a miscarriage at four months, also another eight months later at six months, twins. About twelve years ago a hemorrhage from the vagina came on which continued until the present time; at the time that the hemorrhages appeared she noticed the tumor began to increase in size. Pressure symptoms appeared affecting the rectum and bladder, legs felt tired and heavy. At operation the tumor was removed with great difficulty. It was stony hard; was sawed and proved to be a hard shell 1/4 inch thick; inside was semisolid, pulpy material.

U. S. Thorne, in Calif. State J. M. San. Fran., 1905, iii, 332, reports a case. Mrs. S., age thirty-two, married. Fibromyoma of uterine body and a number of small subperitoneal growths, one attached by a slender pedicle was necrotic. An oblong tumor of stony hardness was found attached to the pubic arch and forming part of the anterior bladder wall. It was examined by Professor Ophuls, of Lane Hospital, and found to be a calcareous muscular tumor the size of a hen's egg, it containing some involuntary muscle but was mostly dense fibrous tissue. It contained large areas of necrotic and irregular calcification. One of the calcified areas was transformed into bone tissue.

DISCUSSION.

DR. J. HENRY CARSTENS, Detroit.—Some thirty-five or more years ago a woman came to the dispensary where I was serving, with fibroid tumors of the uterus. We did not operate on these tumors in those days very much, so I did not operate. Five years

ago this woman came back to me and she had one tumor almost identical with the one described by Dr. Dorsett. In fact, she had three tumors which were packed into the pelvis, causing obstruction of the bowels and bladder. I operated on her and removed the tumors, one of them being 6 inches long and 4 inches in diameter. They were so hard and so solid that I could not cut them open, and so I had to split them open with a hatchet in order to show the calcareous deposits.

The point I desire to make is this, that no matter how long these cases of fibroid tumors are allowed to go, they usually will either undergo calcareous or malignant degeneration, so that as a general principle all fibroid tumors of the uterus should be removed.

DR. HUGO O. PANTZER, Indianapolis.—I wish to report a case of like character. It is similar to the one reported by Dr. Dorsett in the size and calcareous nature of the tumor, and in occurring in a married woman who had never borne children nor been pregnant. I saw the case when the woman was forty-eight years old. She had passed the menopause several years. Her complaints were those of dragging heaviness in the pelvis, bladder irritability, constipation, sacral and occipital pain, with a chafing vaginal discharge.

The patient was a very stout woman, with pendulous abdomen, helpless to an extreme degree. There was evidence of a senile vaginitis, purulent cystitis, and an enlarged, hard uterus was found filling the pelvis. The stony hardness of the uterus and the peculiar feeling imparted on pressing the upper parts, suggesting the fetal head, might have led to the suspicion of the true condition as revealed by the abdominal operation.

DR. DORSETT (closing the discussion).—I have very little to add to what I have already said, except to remark that several years ago I had a patient who complained of a feeling of distress in the pelvis which had existed for seven or eight months, and on making an examination I came in contact with a mass in the abdomen which was loose. A change of position by the patient would likewise change the position of the tumor, so that it could be felt in the posterior culdesac when lying on her back, and could be felt anteriorly when she was lying on her side. I opened her abdomen, lifted the tumor out and found a mass like this. I hoped to bring the specimen with me, but in some way it became misplaced and I could not find it It was a calcareous fibroid, perfectly loose and unattached, and at one period of its existence it was doubtless a pedunculated subperitoneal fibroid. The indications for operation in this particular case were the distressing symptoms referable to the bladder and rectum. The tumor acted as a ball-valve on the rectum, and the woman could not have a bowel movement unless she lay down on the side. Enemas were resorted to for a considerable length of time before she was brought to the hospital.

OVARIAN PREGNANCY AT TERM, WITH RECOVERY OF MOTHER AND CHILD. PRELIMINARY REPORT OF A CASE.

BY

WALTER C. G. KIRCHNER, M. D.,

St. Louis,

(With Three Illustrations.)

ECTOPIC gestation progressing to maturity with recovery of mother and child is a condition sufficiently rare to warrant a special case report. The case, moreover, becomes one of especial interest when its relation to ovarian pregnancy can be established. Of the recognized modes of extrauterine pregnancy, the most unusual form is that of ovarian pregnancy.

The subject of ovarian pregnancy has been carefully reviewed by Williams (*Gynecol. and Abd. Surg.*, Kelly-Noble), and recently also by C. C. Norris (Primary Ovarian Pregnancy and Report of a Case Combined with Intrauterine Pregnancy, *Surg., Gyn., Obs.*, ix, 2, p. 123, 1909). Williams classified thirteen cases as positive, and Norris collected and tabulated nineteen undoubted cases. Of the cases collected by Williams, those of Gottschalk and Ludwig went to term. Of thirty-four cases designated as positive, highly probable or probable, in eleven the pregnancy went to term, showing that the ovary can accommodate itself more easily than the tube to the growing pregnancy.

Regarding the theories of impregnation and development, ovarian pregnancy is thought to result from the fertilization of the ovum before its escape from the Graafian follicle. The diagnosis of ovarian pregnancy is said to be conclusive when the requirements demanded by Spiegelberg are complied with—namely:

1. That the tube on the affected side be intact.
2. That the fetal sac occupy the site of the ovary.
3. That the sac be connected with the uterus by the ovarian ligament, and,
4. That definite ovarian structure be found in its wall.

In addition, Williams believes that ovarian tissue should be demonstrated in several portions of the sac wall. It must be

evident also, that as pregnancy advances and the ovarian structures become attenuated, the difficulty of finding ovarian tissue increases, and it is on this account that many of the advanced pregnancies have been placed among the doubtful cases.

The history of the case that comes to our attention is as follows: the patient, No. 6224, a colored female, thirty years of age, was admitted to the St. Louis City Hospital November 27, 1908. She was a laundress by occupation and there was nothing in her habits of special interest.

Family History.—Her father and mother had died from causes unknown. One brother is living, but two brothers and two sisters died in infancy. There was no history of tuberculosis, malignancy or insanity.

Past History.—Patient had had the usual diseases of childhood. She had never been sick or confined to bed except at childbirth. Menstruation began in the sixteenth year and has always been regular except when pregnant. She married at the age of twenty-one and has had eight children. Seven years ago she gave birth to twin boys, five years ago had a miscarriage, and has had two children since. Three children are living, the rest having died in infancy. The menstrual flow usually reappeared one to two months after childbirth. Her last child was born November 23, 1907.

Present Illness.—The patient entered the hospital believing that she was pregnant and according to her belief had gone beyond term. After birth of last child patient had regular menstruation for three months. Last regular menstruation occurred February 15, 1908. She missed in March, but on April 14 lost an unusual amount of blood and thought she was having a miscarriage. In addition to clots of blood she states that a soft, pinkish substance was expelled, in size somewhat smaller than an egg. On the morning of this day she fainted, became dizzy and fell back in bed. She complained of pain in her womb, but this soon subsided. The flow of blood lasted for two weeks and weakened her a great deal. A doctor was called in, who prescribed for her and thought she had a tumor. He made no special examination. During the succeeding six weeks, she was occasionally confined to her bed, and from the last of April to the birth of the child there were no uterine hemorrhages. On May 14, she had a sinking spell and experienced hot flashes in the face. The flashes were noticed during a period of three or four days. She also had nausea and vomiting,

and about this time began to feel pain in the lower part of the abdomen on the right side. She noticed two "lumps" in the lower abdomen, one in the center and the other on the right side. She called at the office of another physician, who said the womb was enlarged and ordered douches.

In June the mass gradually moved over toward the left side and the pain became less. The pains that she had complained of were of an aching character and she felt that something on the inside was pulling and seemed to cause a soreness. This pain prevented her from being active on her feet and she found it necessary to support the abdomen. On June 6, a physician who had examined her stated that she had a tumor. She felt nauseated and experienced hot flashes on the 14th, but these sensations afterward left her permanently. For the most part she was constipated and had to take salts frequently. She experienced but little trouble with her bladder. Notwithstanding the various diagnoses, the patient believed herself pregnant, her abdomen was getting larger, and early in July she felt fetal movements. During the months of July, August and September she felt quite well, but was obliged to stay mostly in her room.

In October the patient felt well enough to leave the house and went to a market-place four blocks distant. On her return she felt something give way in the vagina and she was obliged to support the womb by pressure from below until she reached her home. A physician who was called in replaced the womb in the pelvis. There was some uterine hemorrhage, but no abdominal pain. The womb remained in position for three weeks, when it again prolapsed and was pushed back by the patient. According to the patient's calculation, she was to give birth to the child on November 15, and on this day she began to have pain in the back and bearing-down pain in the womb. The pains were about ten minutes apart and continued for two days. A physician who examined her thought she had false labor pains and expected to be sent for when labor started. Twelve days later, after a pronounced edema of the cervix associated with prolapse of the uterus had taken place, the patient entered the hospital.

Physical Examination.—Patient was well nourished and about five and a half feet in height. Head, trunk and extremities well developed. Respiratory and circulatory systems practically normal. Temperature 99.6°, pulse 118, respirations 28. The urine was normal, bowels were constipated. Nervous

system was normal. Abdomen was enlarged as in pregnancy, but somewhat asymmetrical, the left side being fuller than the right. The breasts were flabby and but moderately distended with milk. Inspection of genitalia showed prolapse of uterus with edema of cervix and an old laceration of the perineum. The cervix was perhaps more than two inches in diameter and completely filled the vagina. The fetal heart sounds were easily heard and were loudest to the left and a little below level of the umbilicus. Under general anesthesia the assistant physician made a more complete vaginal examination and found that the uterus was empty and that delivery through the natural channel was impossible. Diagnosis, extrauterine pregnancy, edema of cervix. Treatment, abdominal section.

Operation.—Under general ether anesthesia, a long median incision was made extending from the umbilicus to the symphysis pubis. On examination of the abdominal cavity a large, cystic and tumor-like mass was found occupying the lower two-thirds of the abdominal cavity. There were numerous omental and intestinal adhesions. It seemed at first as if we were dealing with pregnancy complicated by ovarian cyst. The intestinal adhesions were liberated, and the omental adhesions were ligated and severed. The mass, which now resembled an ovarian cyst containing a fetus, was freed on all sides and was partially delivered through the abdominal incision. Median incision of this mass was made, which incision happened to be over the site of the placenta. The bleeding here was profuse. The sac was opened and the contents, a matured fetus, removed. The fetus occupied a somewhat longitudinal position, the back being toward the left. The head was above and was flexed forward on the chest. The arms and legs were folded in front of the body. The cord appeared normal.

The child soon after delivery opened its mouth and made efforts at respiration. It was placed in the hands of an assistant, who quite easily resuscitated the child. The sac was shelled free from the abdominal cavity. The appendix had become adherent to one portion of the sac and after careful ligation was severed. The sac originated from the right side in the region of the ovary and it was here that the main blood supply was obtained. A sort of pedicle in the region of the right ovary was ligated with interlocking stitch and was severed. In ligating the adhesions on the left side, the tube was also removed. The uterus was somewhat larger and softer than normal and

occupied the central and dependent portion of the pelvis. The fetal membranes separated easily from the sac and the denuded portions were greenish-yellow in color. The amniotic fluid

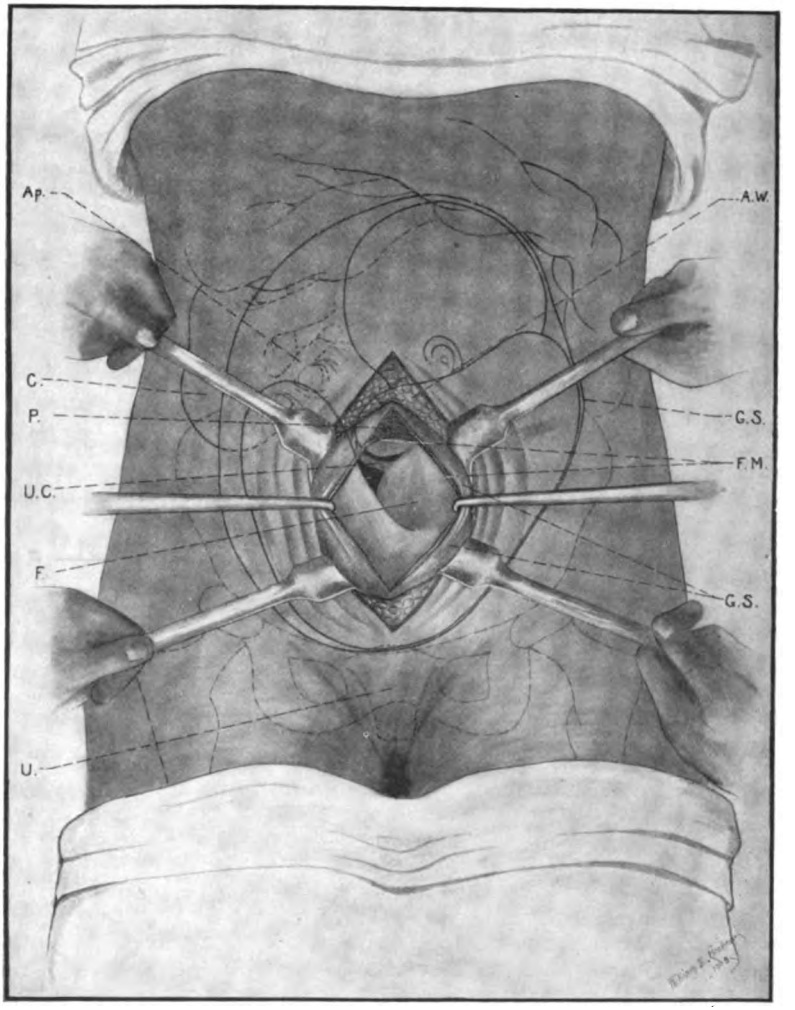

FIG. 1.—Diagram showing ovarian pregnancy at term. A. W. Abdominal wall. G. S. Gestation sac. F. M. Fetal membrane. A. P. Appendix. C. Cecum. P. Placenta. U. C. Umbiblical cord. F. Fetus. U. Uterus.

was greenish-yellow in color and was turbid. Some of it escaped into the peritoneal cavity. The sac and contents having been removed, the abdominal cavity was flushed with saline solution

and flank drainage on either side instituted. The abdominal wound was closed in layers. The operation was performed in less than thirty minutes. The patient suffered considerably from shock and was put to bed in a critical condition. She was given hypodermoclysis of saline solution and stimulants, and gradually rallied from the operation. The child seemed normal

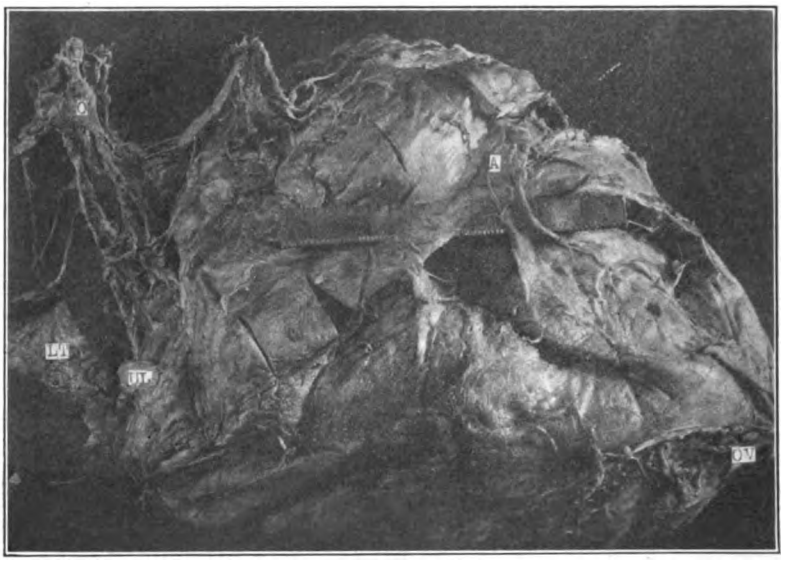

FIG. 2.—Posterior view of gestation sac. External surface. O. Omental adhesions. A. Appendix. L. T. Left tube. O. V. Ovarian vessels. U. L. Utero-ovarian ligament.

in every respect. At this operation, I was most efficiently assisted by Drs. Cleveland H. Shutt and Rodney J. Bunch.

Post-operative Course.—The patient developed a localized peritonitis, and endometritis. She ran a febrile course, and owing to her weakened condition and a bad cystitis, her convalescence was somewhat protracted. She ultimately made a good recovery and has assumed her usual vocation.

The Child.—The child is a full term male baby, well developed, with no deformities, but is somewhat poorly nourished. The skin is wrinkled, somewhat macerated and there is desquamation over entire body. There was a deficiency in the amount of vernix caseosa. Hair covering scalp normal, finger-nails well developed and projecting, toe-nails well developed. Child is a

mulatto. Eyes, nose, mouth and genitalia are normal. No evidence of congenital disease.

Measurements.—Head, biparietal, 8.5 cm.; bitemporal, 7.5 cm.; fronto-occipital, 11 cm.; mento-occipital, 11 cm.; sub-occipito-bregmatic, 9 cm.; occipito-bregmatic, 10 cm.; bimastoid, 7 cm.; suboccipito-mental, 8 cm.; fronto-mental, 9 cm. Cir-

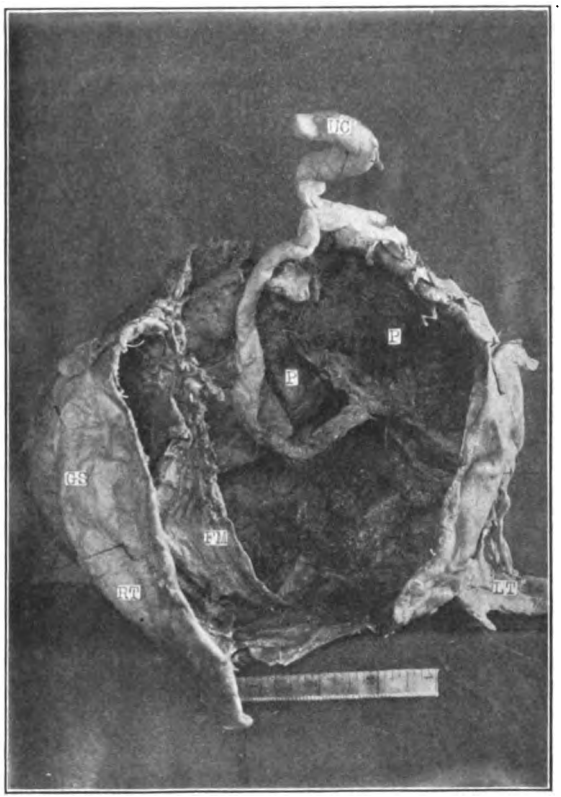

FIG. 3.—Interior view of gestation sac. U.C. Umbilical cord. P. Placenta. G.S. Gestation sac. F.M. Fetal membranes. L.T. Left tube. R.T. Right tube.

cumference of head around cinciput and occiput, 34 cm. Across shoulders, 12 cm. Chest: lateral diameter, 7 cm.; antero-posterior, 8 cm. Length, 48 cm. Weight, 6 3/4 pounds. The child was nourished by artificial feeding and thrived well. Both mother and child ten months later are in good health.

SPECIMEN.

Macroscopic Appearance.—It was not possible to at once prepare the specimen for microscopical examination and instead it was placed in Kaiserling solution. The specimen represented a closed bag opened by incision. The dimensions were 20 x 18 x 16 cm. The outer surface is partly roughened by torn bands of adhesions. The anterior surface is free. On the posterior surface, the severed appendix, 10 cm. in length, is densely adherent. On the upper surface are attached remnants of omental tissue. On the left side the severed left Fallopian tube, 6 cm. in length, is loosely attached. The tube is normal. The right tube is adherent to the right side of the sac in much the same manner as the appendix. The fimbriated end is covered over by adhesions, but has no connection with the interior of the sac. The tube is 11 cm. long and of nearly uniform diameter. At the lower part of the sac, there is a ligamentous structure resembling the utero-ovarian ligament. On the right side below and beyond the attachment of the right tube, there is a rather large and tortuous artery and large veins. There are also vessels leading into the sac from the omentum and left broad ligament. The interior of the sac is lined by placenta and fetal membranes.

The placenta is mostly situated on upper and anterior portions of sac and away from region of right tube. It measures 12 x 9 x 5 cm. and in one portion is 14 cm. across. The umbilical cord is 42 cm. long and 1.2 cm. in diameter. It divides into four branches; the two larger branches going to the placenta, the two smaller ones supplying the membranes. The placenta and especially the fetal membranes can be easily separated from the gestation sac. The gestation sac is less pliable than the fetal membranes and is mostly 1 to 2 mm. in thickness. The left portion of the sac is thinner than the right and numerous bloodvessels can be seen to ramify through this structure. Several portions of the specimen were removed for microscopical examination.

MICROSCOPIC EXAMINATION.

From the surgical standpoint the case is of interest in that both mother and child were saved. With the exception of a slight contracture of the left side of the neck and a slight asymmetry of the head, the child seems normal. This is also unusual

in cases of ectopic gestation, where deformity or malformation is the rule.

A study of the specimen combined with the history of the case leaves little doubt as to the nature of the pregnancy, and it may be considered of the ovarian type for the following reasons:

1. The history of the case points to an ovarian pregnancy on the right side.

2. At operation a large gestation sac resembling an ovarian cyst was encountered, the pedicle or area of attachment being in the region of the right ovary. The main blood supply to the placenta was received from this site.

3. The uterus was comparatively free, slightly enlarged and centrally located, permitting prolapse.

4. The left ovary and tube were normal.

5. A right normal ovary was not found.

6. The right tube was adherent externally to the gestation sac in much the same manner as was the appendix, but otherwise the tube was found to be normal.

7. The placenta was located entirely within the gestation sac and was entirely free from attachment to any part of the peritoneal cavity. It occupied the anterior and upper part of the sac and had no relation with either tube.

8. There was no mass of ovarian tissue found, nor anything to indicate tubo-ovarian or abdominal pregnancy.

9. The physical characteristics of the sac are those of an ovarian cyst and microscopical examination gives evidence of ovarian structure and origin.

10. The gestation sac was attached to the uterus by a ligamentous structure and its position on the specimen seems to indicate that the right tube did not become adherent to the sac until it had attained considerable size.

These conditions practically conform to Spiegelberg's requirements for the demonstration of ovarian pregnancy.

DISCUSSION.

DR. E. GUSTAV ZINKE, Cincinnati.—There is not much to be said except, perhaps, to congratulate the author of the paper upon the fortunate result and his good luck of coming across a case of this kind. Ovarian pregnancy, pure and simple, is very rare. The case before us permits of no doubt as to its true character. It is remarkable what nature will do when the ovum is implanted ectopically. We know that the cases of ectopic gestation which go to term without adhesions, are those

where the tube holds out to the last. The next in frequency which may reach the end of term is the ovarian variety; but here very often rupture takes place because of the brittle character of the ovarian structure. Another class of ectopic gestation cases which may reach term, also quite rare, is the tuboovarian pregnancy. Rarer still is the so-called secondary abdominal variety which reaches the latter period of gestation.

DR. ERNST JONAS, St. Louis.—I have in my possession the specimen from a case of the kind just mentioned by Dr. Zinke. I believe it is the only case of that kind on record. The patient was operated on by Dr. Tuholske at which time I was assisting him. In the second month of pregnancy the whole ovum was swept away from its seat of implantation in the right tube into the free abdominal cavity, implanting itself in the region of the liver, and changing the liver tissue. The peritoneum covered the kidney and parietal peritoneum to such a degree that these tissues were changed to true decidual tissue. The pregnancy went to term and a living child was removed at the end of pregnancy. The mother died a day after the operation.

The specimen which we have in our possession shows that in this case it would have been absolutely impossible to have removed the placenta by force from these organs. There was no contractile tissue around it which would have led to stoppage of the hemorrhage. After removal of the child, the cavity in which the fetus had been located was tamponed with gauze; one day later the mother died. I did not know exactly why she died, but perhaps death was due to embolism or some infection.

From the picture which Dr. Kirchner gave us I believe that this case in the beginning was perhaps also a case of tubal pregnancy, since he said that about five or six weeks after the conception of the mother there was a severe collapse, reminding us of the condition which we get when rupture of the tube takes place. I imagine that in a case of this kind the ovum was swept *in toto* through the fimbriated end of the tube toward the ovary, and implanted itself there. It is remarkable that ova at such an early stage can go on without destruction.

DR. A. B. MILLER, Syracuse.—In the pathological museum of our college at home a specimen has been recently placed of an ovary which contains an ovum perhaps of two months' development. The case was operated on by a neighboring surgeon who supposed that he was simply dealing with an ovarian cyst. The patient came complaining of more or less pain, and on examination a small globular mass was found in the pelvis. Without taking a history of the patient, of the possibility of its being a pregnancy, she was operated on and the ovary removed which contained this small ovum or small embryo. Its appearance on inspection is that of a bur within an oyster or cameo setting.

DR. ROBERT T. MORRIS, New York.—Do we not make a mistake in removing the placenta in cases of diffuse attachment?

It is pretty well known that the peritoneum will digest a beefsteak and there is sometimes no necessity for removing the placenta. I recall one case in which the placenta was left without any harm whatsoever. There was extrauterine pregnancy at about the third month. The placenta was attached to so many structures that I did not know which part to free first, hence ended by closing the abdomen and leaving the whole thing in place. The peritoneum attended to the placenta in that case at least, for we never heard anything more from it.

DR. KIRCHNER (closing the discussion).—I take it that Dr. Morris refers principally to those ectopic cases in which the fetus is found free in the abdominal cavity. In my case we have a complete sac with the placenta on the inside. The placenta was absolutely free from anything in the peritoneal cavity.

In reply to Dr. Jonas, as to this being originally a tubal pregnancy, I would say that sections of the right tube were made showing that the tube is normal. There is no decidual tissue in the tube. While, in general, the relationship of decidual formation to ectopic pregnancy has not been definitely decided, occasionally decidual tissue is found in cases of tubal pregnancy, but no decidual tissue was found in the tube in this case. I think, therefore, we can exclude pregnancy in the ampullar portion of the tube. In regard to the history of sudden pain as in tubal rupture, it has been observed that these symptoms are found in ovarian pregnancy just as in cases of tubal rupture. That is, the patient has certain symptoms of miscarriage and other disturbances, such as shock and fainting. Therefore, the argument will not obtain, because in other instances such symptoms have been found in true ovarian pregnancy of undoubted origin, just as Dr. Zinke has explained.

I think we can readily exclude in this case every form except primary abdominal pregnancy, which must be exceedingly rare if it exists at all. I do not think that it is abdominal, because the characteristics are those of ovarian pregnancy. Moreover, if we exclude tubal and broad ligament pregnancy, there is nothing left for consideration except ovarian pregnancy, and we know positively that such pregnancy can exist. The remarkable thing in this case is that pregnancy went to term and that the mother and child recovered. The specimen is submitted for your examination.

A STUDY OF FOUR HUNDRED AND FORTY OPERATIONS ON THE APPENDIX WITH REMARKS.

BY

EDWARD J. ILL., M. D.,

Newark.

(With two illustrations.)

THE work herewith reported is the writer's personal experience.[1] It is the writer's habit to look over the histories of his cases now and then, to study up some particular subject and to learn the results both immediate and remote. If written histories are not studied, one gets impressions as to results which are often widely at variance with the true condition of affairs.

To-day I wish to present to you the result of my work on the appendix. It is my first offense for I have neither written nor said a word on the appendix before. So much has been said and written on the appendix that I rather hesitated to bring this matter before you. No small amount of good work on the subject has been developed by Fellows of this Association and published in our transactions. I would dare say that what cannot be found in our transactions is not of great value.

I have, nevertheless, asked your indulgence especially as we have much to learn and our death rate is still high. It is high for the chief reason of late operations on neglected cases. If only the diagnosis were made earlier and the hypodermic syringe were less in evidence, how much better our results would be. All this is a discouraging feature of my work.

Conditions necessitating work on the appendix presented themselves 440 times up to March 30, 1909. Of these 40 per cent. were males and 60 per cent. females. Females probably predominated because my work is mostly among women; for it was in eighty-one women that the appendix was incidently removed when other surgical conditions prevailed and the appendix looked diseased. I never agreed to the idea that because the abdomen was opened the appendix should also be removed.

It is my strong belief and conviction that whatever work is done, should be done simply to remove the cause producing the

[1] His own work with that of Dr. Charles L. Ill and their combined assistants comprise several times the number of cases herewith reported.

symptoms or disease for which the patient seeks our advice. Thus, I have rarely removed the appendix unless I thought it presented a condition of disease. I am sorry to say, however, that I have occasionally been mistaken, for the pathologist would now and then report a normal appendix. I know of little use physiologically of the appendix and for that reason see no objection to its removal. What I do know, however, is that any prolongation of the operation adds to the patient's danger and certainly to his discomfort during convalescence.

The youngest person operated on was five years old and the oldest one was sixty-five years. The nonsuppurating cases presented 57 per cent. of all cases while 43 per cent. were suppurating. Of the 189 septic cases there was a localized abscess in 109 cases and diffuse suppurative peritonitis in seventy cases. What seemed to be a general peritonitis was recorded in eight cases and two cases had septicemia.

The total number of deaths in all cases was thirty-two or 7.2 per cent. Increased experience shows a marked reduction in the death rate. Thus in the first 100 it was 18 per cent.; second 100, 6 per cent.; third 100, 5 per cent.; fourth 100, 3 per cent.

The total number of deaths in the nonsuppurating cases was two or 0.8 per cent. In one case it was an acute Bright's in a male following a chronic condition at sixty-five years that killed the patient. In another it was a paralytic ileus which resulted fatally in a male on the third day. This patient had not been prepared properly for the operation as regards his diet and bowels and was the victim of an epidemic, which prevailed with a limited few who believed that abdominal cases needed no preparation for operation.

The total number of deaths in the suppurative cases was thirty or 14.3 per cent. This number might have been reduced to a marked extent if I had refused the hopeless cases. Often it was simply a demonstration to show the attendant his fault in letting a patient go to a last chance.

An important factor in the death rate is the personal one in the after-treatment. Thus in 193 cases that were looked after personally by myself, the death rate was but 3.6 per cent., while in 185 cases looked after by the attendant physician the death rate was 10.3 per cent. or nearly three times as great. It is likely, however, that there were many especially bad cases among the latter.

The thirty deaths showed the following causes:

Local abscess	4
Diffuse suppurative peritonitis	8
Chronic nephritis	1
Perforative appendicitis	3
General peritonitis	10
Septicemia	2
Paralytic ileus	1
Septic pneumonia	1

The death rate shows but 10 per cent. of the cases of diffuse suppurative peritonitis, a result very gratifying to the operator. This however is all introductory to the remarks I wish to make. No experience is so good as one's own. It will be of interest to note the results as they can be reached, not from the masters in the art but from the hospitals generally, as we see them all over the country.

Dr. W. D. Minningham was kind enough to collect for me from various hospital reports throughout the country 7,683 cases of operation for appendicitis. The total percentage of deaths was 8.2 per cent. The death rate from non-suppurating cases was 3.7 per cent. The suppurating cases showed a death rate of 26 per cent.

The classification was given in the various reports as follows:

NON-SUPPURATIVE.

Acute	4,565; died, 203	3.7 per cent.
Chronic	1,380; died, 8	
Associated with other conditions	156; died, 17	

SUPPURATIVE.

Local abscess	820; died, 102	—12.4 per cent.
Diffuse suppurative	204; died, 101	—49 per cent.
Gangrenous	254; died, 50	—20 per cent.
Perforative	86; died, 11	—13 per cent.
General peritonitis	218; died, 141	—67 per cent.

The total number of reports received was 164. Of this number sixty-five reports were not available for use, since they were ambiguous, the diagnosis poorly stated or the result not apparent. Such cases were reported to the number of 4,112, really making a total of 11,795.

I wish to express herewith my thanks to Dr. Minningham for the labor he has bestowed on these reports as well as his work pertaining to my own records.

It will be important to note that I have never been obliged to reopen the abdomen for late symptoms or adhesions. You will remember that these are said to be of common occurrence. I state this because we commonly hear of this being done. Thus, one of our most honored and learned Fellows recommends an especially prepared membrane to cover the peritoneum in these cases.

There were two cases however that needed operation. One was a fecal fistula with a hernia and the other was followed by a hernia. Both patients had been sick with sepsis many weeks before they recovered. Whether there were other hernias I do not know. There could not be many since all drainage cases were urged to return in six months or one year for inspection.

So much has been written concerning the operation and its technic that I hardly dare go into that and still my remarks would be incomplete without it. We all agree that an operation cannot be done too early. Nothing is gained by waiting and everything may be lost. Most of the deaths are attributable to late and neglected cases. I have never been sorry to have operated early but many times not to have had a chance at earlier cases. We have been told again and again that a quick operation is of great importance. To this we must all acquiesce. Nevertheless, I am anxious to remove the appendix and search for a concretion from the ruptured appendix whenever that can be done within reasonable time. It all depends on the condition of the patient, however, and at times we should refrain entirely. I have seen many a case where the wound would not close because of the retention of a fecal concretion. In the search for the appendix one should be guided more by the insertion of the ileum into the colon than by the long white bands of the caput, always remembering that the near end of the appendix is within 2 cm. of the insertion of the ileum.

In all septic cases the suture material for the bowel should be absorbable. I regret very much that many surgeons are returning to such non-absorbable material as linen thread. I regard it as purely a matter of personal convenience. While I would not hesitate to use non-absorbable material in clean cases, I must certainly object to its use in septic cases, because of the

formation of fistulous tracts both fecal and otherwise. It is only the finest catgut commensurable with its tensile strength that should be used for the bowel suture and it should be slightly chromicized. The ligature of the mesentery should be of plain catgut.

The treatment of the stump is important. I prefer the removal of the appendix with the cautery above the ligature. After a visit to a prominent surgical clinic we refrained from this, simply using a clamp and suture, but soon returned to our former method when we found blood in the stools of two cases, and a hematoma in a third case. The use of the cautery is more circumstantial than the application of carbolic acid but its disinfecting quality is more potent. It is difficult to understand how carbolic acid can penetrate into the convolutions of the mucous membrane. I am told of the good results of simply dropping the stump. I have no personal experience in this respect and much prefer a clean and smooth peritoneum such as can be obtained only by suture, either purse-string or interrupted. I have never seen any complication which might have been the result of such treatment of the stump.

As to drainage every one's experience is his best guide. Now and then a cigaret drain has served me well. In the real bad cases, however, I much prefer to spread some iodoform gauze loosely on the outer side of the caput coli, while the wound of the bowel is protected by a thin piece of rubber dam. With these precautions I can truly say that bowel fistulæ are an almost unknown factor in our experience. I can record but a single case which needed operation later on, and that one was a patient with a large slough in the head of the colon, the disease having lasted ten days and the patient being septic.

It is the after-treatment in the septic cases that I want to call your attention to. During the last five years I have adopted a right lateral semiprone or modified Sims's posture in all drainage cases. The quantity of fluid thus drained from the abdomen is often truly wonderful and there is also a marked improvement in the pulse, temperature, and general appearance over the former methods of drainage. The posture has the effect of bringing the opening made into the peritoneum to the lowest position of the cavity and thus drain very completely. This will be easily understood since it is more likely that fluid will flow downward more readily than upward, even though the latter may be under positive pressure of the abdominal contents. The

drain, whether it be a cigaret or open gauze drain can be brought out through the upper end of the incision where the muscles and the abdominal pressure are least, and thus secure a condition which rarely produces a hernial protrusion. Secondary or loin incisions are thus entirely uncalled for, for the purpose of drainage.

This posture may be described in the following way: the bed selected should have a good mattress on a stiff spring. When such a spring cannot be obtained a lap board should be placed under the mattress midway in the bed. In putting the patient

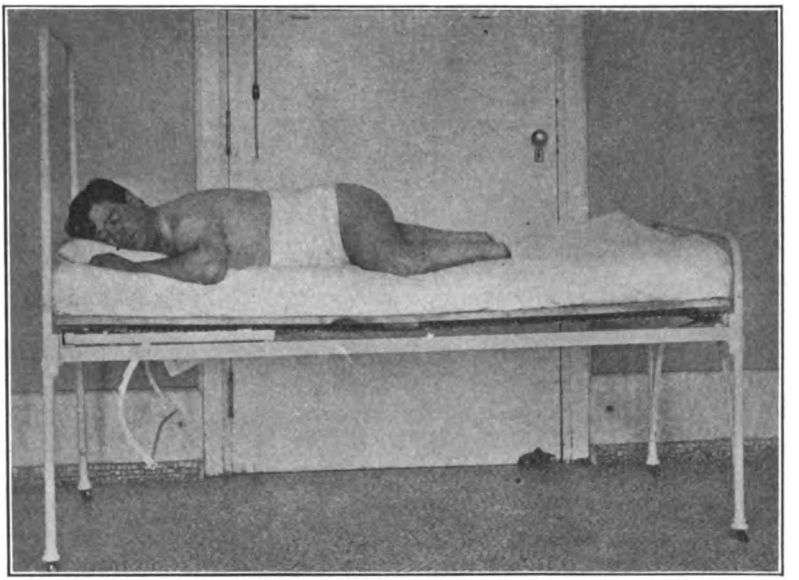

FIG. 1.—Proper posture.

into the bed he is placed flat on his back well beyond the middle of the mattress. The left thigh is flexed at right angles to the body and the bent right elbow pushed alongside of the chest to remain either behind or in front of the patient as may be most comfortable. The patient is then rolled over on his right side until the wound is flat on the bed, the left thigh remaining at a right angle to the body. A very small pillow under the right side of the head will add to the comfort of the patient. The accompanying photographs will explain the position better than words. It is quite important that the bed be an unyielding one. There is little complaint from the patient because of the posture.

At the end of twenty-four hours, that is, with the change of the first dressing the patient is turned on his back, for at the end of that time everything is walled off. As has already been said the amount of fluid drained off during the first twenty-four hours is often amazingly large. A further advantage of the posture is the ease with which normal saline solutions may be injected into the rectum. The introduction of the fluid is much favored by this posture since it will naturally gravitate upward.

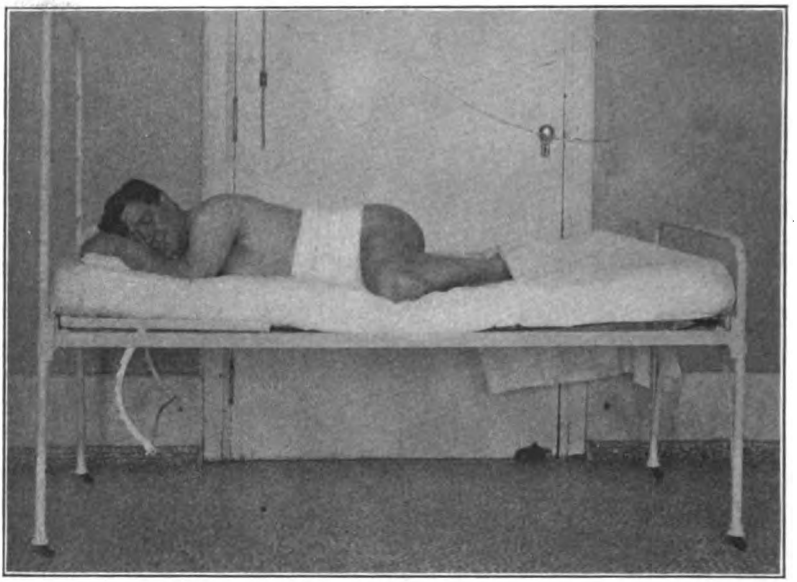

FIG. 2.—Improper posture.

I speak of this since we all agree as to the apparent advantage of rectal saline infusion. The wound should be kept scrupulously clean, while the dressing should be changed every twenty-four hours. Whenever the gauze is used either *en masse* or as a cigaret drain I am anxious to have it kept wet. Wet gauze will continue to act as a drain while dry gauze will dam up the discharges. It is therefore my custom to place a compress soaked in a 1 per cent. solution of carbolic acid over the wound. Over the compress I order a piece of rubber tissue. This keeps the compress wet. The nurse changes the compresses as often as it is necessary to keep the parts clean, that is, about once in four hours. When the drain has once been removed no further packing is ever

done. This constant packing of the wound is not only exceedingly annoying and painful to the patient, but lengthens the period of convalescence and keeps up a running temperature. I have many times heard my assistants say that our own ward patients recover quicker and easier than those of my colleagues who insist upon repacking the wound.

THE NEW POINT IN DIAGNOSIS BETWEEN APPENDICITIS AND TUBAL DISEASES.

BY
ROBERT T. MORRIS, M. D.,
New York.

FOR more than a year I have been calling attention to a diagnostic point which is of value in differentiating between appendix trouble and diseases of the adnexæ. The question has been taken up by a number of different writers, who have given me suggestions of much value, and I can perhaps answer some of these questions to-day to advantage for the members of this Association. The point, as you will remember, is this: about an inch and a half to the right of the navel close down to the spinal column we find the right group of lumbar ganglia. Hypersensitiveness on deep pressure at this point seems to indicate that the appendix alone is the seat of irritation. When the left group of lumbar ganglia an inch and a half to the left of the navel also shows hypersensitiveness, then we are to look to the pelvis for the source of irritation. A number of men have said that I must be wrong about the structures involved. They believe that we are not dealing with the lumbar ganglia, but with the lymphatics instead. My answer is this: it was my own original belief that we were dealing with sensitive lymph nodes and lymph chains, but my reason for deciding that we were dealing with sympathetic nerve ganglia was that we found the greatest degree of hypersensitiveness and the greatest importance of this diagnostic sign, in cases in which there was no infection whatsoever; in other words, in cases of what I call protective appendicitis.

We must divide our cases of appendicitis to-day, for the purpose of classification, into at least four kinds. First, protective appendicitis, the commonest type. These are patients who go the rounds, visiting doctor after doctor asking if they have or have not appendicitis, and if they see a sufficient number of doctors they obtain in the end a sufficient number of opinions. They are the cases in which the patient is never going to have appendicitis of the infective character. Such a patient is protected against it, and for two reasons. First, because the

structures susceptible to infection are removed by the degenerative process called by Senn appendicitis obliterans, and by Ribbert normal involution of the appendix. The structures susceptible of infection are being removed hour by hour, day by day, month by month, and year by year in these cases. And another reason why these cases are not going on to infective lesions, is because of the constant irritation of nerve filaments entrapped in the sclerotic fibers leading nature to call out a persistent hyperleukocytosis, local in character and protective.

These cases may be classified as those of protective appendicitis. They form the largest number of appendicitis cases that we have in the whole world at the present moment. It is in precisely this class of cases that the diagnostic point is of the greatest value. The patients who go the rounds of the profession with the appendix in the shape of a question mark may have tubal disease, and often the question of many other conditions comes up; but if you press on that point an inch and a half to the right of the navel, and deeply, you press the button which turns on the light. In cases of tubal disease both groups of lumbar ganglia are hypersensitive, but in cases of appendix trouble the right group only.

The second most common cases are those of intrinsic infective appendicitis. Those are the cases which attract our attention more frequently at the present moment, because they represent the yellow journalism of appendicitis. The features are all in evidence on the front page in large red type. These are, next to the cases of protective appendicitis, the most common. In them the diagnostic point, which I have tried to bring out, is of small value. Why? Because we have other points of so much greater value. It is often present and often obscured by the dominance of more important signs which are recognized to-day. Therefore, in the second group of cases, McBurney's point is one of great diagnostic value, and the point to which I call your attention is of fourth rate importance.

The third most common group is perhaps the cases of syn-congestive appendicitis, where we have serous infiltrates in the tissues synchronously with serous infiltrates in the vicinity, and the appendix is incidentally tense from the infiltrates. In cases of loose kidney we often find this condition. Also, in cases of abdominal ascites, rheumatism and in cases of various kinds of obstruction to the lymph and blood circulatory currents, we will find cases of syn-congestive appendicitis. These also are

protective against infective changes. The appendix is found on pressure, to be more sensitive than normal, and the patients have symptoms of irritation in the appendix region, and in these cases again we find this diagnostic point of some value, but not of great value.

The fourth class consists of cases of appendicitis with extrinsic infection in which the infection proceeds from the oviduct, peritoneum, or some neighboring structure, and so slowly that we do not have the incident of rapid swelling that occurs with intrinsic infection in which we have a rapid compression anemia, due to swelling of the soft inner coats within the tight outer sheath. In the attack of compression anemia, the tissues are made temporarily vulnerable to attack by bowel bacteria. In the cases of extrinsic infection, however, the appendix shows slow tissue changes, and a protective leukocytosis goes on in such a way that we do not frequently have to deal with the accidents belonging to intrinsic infection. In this class of cases the diagnostic point to which I call your attention is not of great value, because the appendix feature is very apt to be associated with pelvic trouble; therefore, we are apt to have both groups of lumbar ganglia hypersensitive.

The thought I wish to make essential is this, that this diagnostic point is of greatest value in the commonest class of cases of appendicitis—namely, protective appendicitis, and in the class of cases in which there is most often a question if we have disease of the oviducts or of other structures. In some cases of appendicitis with intrinsic infection, the diagnostic point has been of value when this type of appendicitis has been actually associated with tubal disease. Twice during the past year physicians have said to me, "here is a patient who has pelvic disease, but also appendicitis." I have said to them, "why have you so decided?" "By knowing the point to which you call attention"—they answered, "both groups of lumbar ganglia are hypersensitive, but there is a greater degree of hypersensitiveness on the right side." Twice physicians during the past year have made diagnoses of appendicitis in conjunction with tubal disease, because of a greater degree of hypersensitiveness of the right lumbar ganglia.

How are we to rule out hysterical sensitiveness of the abdomen? By the superficial character of the sensitiveness on pressure at this point. Will a hernia on the right side cause hypersensitiveness at this point, exclusively? That is a matter which I have

not quite determined yet. With reference to this feature I have examined a fairly large number of cases of hernia. In cases where the hernia was causing acute symptoms, there has been a good deal of local sensitiveness, both superficial and deep, but we did not need that diagnostic point, because the other features were sufficiently in evidence. In cases in which the hernia was not causing any acute disturbance, there was no sensitiveness of the right group of lumbar ganglia. In cases in which the source of irritation is above the level of the navel, I put a negative value on this point. In cases of loose kidney, with congestion of the appendix, this point does not furnish evidence of any great value, because we have the better testimony of the loose kidney.

In cases of pneumonia, where there has been a question of diagnosis, of what value is this diagnostic point? I do not know. I would like to know. I have not seen during the past two years a case of pneumonia in which I could bring out this point; but a good many cases of pneumonia are operated on every year for appendicitis, and I would ask the members of the Association to bear this in mind and find out what value this point has in cases of pneumonia.

In cases of gallstones, I have not found hypersensitiveness on either side of either group of lumbar ganglia of value. This is also true of ulcer of the stomach. In one case, where it was a question if a patient did not have chronic ulcer of the stomach, I found both groups of lumbar ganglia hypersensitive, and going to the pelvis for the source of the trouble I found that he had tuberculosis of the left seminal vesicle, and his dyspepsia disappeared on the removal of the left seminal vesicle. The man was sent to me, however, with the question of operation for ulcer of the stomach.

In cases of malignant disease of the cecum or sigmoid, we would naturally expect to find that the right group of lumbar ganglia, or the left group of lumbar ganglia, was hypersensitive on pressure. In cases of malignant disease, for some peculiar reason, for which I at present have no explanation, this point is of no diagnostic value.

DISCUSSION ON THE PAPERS OF DRS. ILL AND MORRIS.

DR. JAMES F. BALDWIN,[1] Columbus.—I was much interested in the first paper, and I am anxious to see it in print, when I shall

[1] The president invited Dr. Baldwin to open this discussion.

take great pleasure in examining the writer's statistics more at length. While coming over on the train this morning and looking over some proof, I noticed that in the three years preceding the current year I had 615 operations for appendicitis; 467 of these were interval operations, but with one death; 122 operations were for acute appendicitis with no deaths; in twenty-six cases the operation was made in the midst of extensive suppurating and gangrenous conditions, what is commonly called "general purulent peritonitis," with five deaths. In at least two of these cases the patients were moribund, but a rapid operation was made because of a bare prospect to afford relief.

In regard to the drainage mentioned by Dr. Ill, I shall refer to that in the paper which I expect to read this afternoon, taking it up in connection with drainage for pus cases in the pelvis. I have been watching for the last year or two Dr. Morris's "point," as we call it in contradistinction to the McBurney point, and in a number of cases I have found it of decided value. In some others it has been apparently deceitful; possibly, however, because I was not sufficiently expert in bringing it out, but it is a point which I investigate constantly.

Two days ago I operated on a woman who, according to the history as obtained from her and her physician, presented a very typical appendicitis of the chronic type, of several weeks' duration. She had not been especially sick, but the tenderness was a source of anxiety. This tenderness had been sufficient to confine her to her bed for several days. In this case there was distinct tenderness at the Morris point although it was not pronounced, but in making a vaginal examination I found marked tenderness over the right tube, and I could there feel a lump which was also tender. This led to the belief that I had tubal trouble to deal with in addition to the trouble with the appendix. She menstruated, as she had stated positively, only the week before, the flow being entirely normal. Explaining the matter to her physician, I made a median incision through which I expected to remove the appendix, and at the same time do whatever was necessary with the appendages. The appendix was found somewhat congested, but no more so than we find it in many cases in which we have no distinct history of any appendicial trouble. To my surprise, however, a tubal pregnancy was present which was leaking a little. In this case, therefore, we had a quite typical tenderness at Morris's point, but the vaginal examination obviated any error being made in the operative procedure.

DR. J. HENRY CARSTENS, Detroit.—The paper of Dr. Ill is characterized by good common sense, as are all of his papers, and I endorse everything he has said. There are one or two points I wish to emphasize, and one is with reference to removing the appendix whenever the abdomen is opened for the relief of some other pathological condition. I think that is bad doctrine and bad practice, if there is no other reason for removing the appen-

dix. I wish to endorse that point in the paper. I heartily endorse the other point with reference to using silk ligatures. I cannot see how any man who calls himself up-to-date in modern surgery will use silk for any purpose, except in intestinal surgery. Catgut is so good and so sterile that there is no excuse for using anything else in cases of suppurative appendicitis.

With reference to the point he makes about drainage, I for the life of me cannot see why we should make two or three openings for the purpose of drainage, such as lumbar puncture, and the like. I become very impatient when I hear of these things being done or even proposed. The abdominal cavity is compressible and fluid will move in the direction of least resistance whether it be behind or in front. Its contents will be pressed in that direction and the pus will come out there. I do not believe in using iodoform gauze for drainage in these cases because it drains less and often furnishes a fertile soil for the microbes to feed upon. It is better to use plain gauze and leave it in for a short time, but not well to poke around there all the time to see how things are getting on. Sometimes on one side an abscess may form, or there may be some pus about the omentum or loop of intestine, but the pus will break in the direction of least resistance. And what is the advantage of constantly irritating the wound by the use of gauze? I tell my students to let the patients alone and trust to the vis medicatrix naturæ and they will get along all right.

DR. MAURICE I. ROSENTHAL, Fort Wayne.—I would like to ask Dr. Carstens whether I understood him to say that he used catgut in intestinal surgery for making anastomoses.

DR. CARSTENS.—That is the only exception I make. I always use catgut in intestinal surgery but not in making anastomoses.

DR. ROSENTHAL.—If you use catgut in cases in which there is suppurative disease, the catgut in the course of the suppuration will disappear and is much less liable to make trouble than non-absorbable ligature. In clean cases, however, I prefer silk or pagenstecher in all operations on the bowel and appendix. The use of catgut in appendix operations has much to do with the conclusion of some expert operators, who consider the removal of a healthy or comparatively healthy appendix to be much more dangerous than the removal of a diseased one. I have heard such a statement made by men of large experience and by observing surgeons. I believe it is the use of catgut for ligation of the appendix, which makes the removal of a comparatively healthy appendix more dangerous; it is the catgut which lies at the bottom of the increased danger. I have done considerably over one thousand appendectomies and I can recall a number of comparatively healthy, if not entirely healthy, appendices among this number. Yet I have had no trouble along this line. I speak of this especially for the reason that I would like to know what the opinion of the profession is with reference to the use of silk in these cases in particular. No long ago we were using catgut very

largely in intestinal work, but we have had good reason to cease using it. When you cut off the appendix you have a small opening in the bowel, and the conditions there are not different from what they are in a case of intestinal anastomosis or an opening in the bowel elsewhere, so that, if silk or pagenstecher is proper in intestinal work generally, it is proper in appendectomy.

So far as lumbar drainage is concerned, it is a good thing in those cases where you do not wish to subject the patient to the danger of hernia. It does not make much difference as to the efficiency of drainage, but I do believe lumbar drainage frequently prevents the occurrence of hernia following cases of suppurative appendicitis which require drainage.

The use of normal salt solution has been touched on for use in cases of appendicitis. I have been using for the purpose of the Murphy irrigation simply a rectal tube, to which is fastened an ordinary piece of adhesive plaster in such a way as to make an enlargement at this point (illustrating on blackboard), making it a self-retaining tube; this is inserted into the rectum in such a way that the sphincter makes an occlusive closure about the tube where the adhesive plaster makes the enlargement. This connected with a glass tube irrigator raised 4 or 6 inches above the bed, enables one to get the normal salt solution into the bowel while gas and fecal matter pass readily up into the irrigator. I have found this very efficient and quickly made, simply taking the rectal tube and winding about it sufficient adhesive plaster to make the enlargement, using that as a self-retaining rectal catheter for drainage of the bowel, and at the same time to keep up a continuous flow of saline solution into the bowel.

DR. ERNST JONAS, St. Louis.—At the request of Dr. Morris I wish to cite a case of a boy on whom I operated for the removal of the appendix, which was complicated by a right lobar pneumonia. One of our most prominent diagnosticians of St. Louis, a man who is extremely careful and painstaking, called me one evening to the University Clinic and said during the afternoon he had had a boy under observation, about eleven years of age, who undoubtedly had a perforation of the appendix. I went there and got the following description from him: the boy was taken suddenly sick with pain all over the abdomen, subsequently followed by nausea and vomiting, then local pain in the region of the appendix and rigidity. This physician made a diagnosis of perforation of the appendix. I examined the abdomen of the boy very carefully and found all these symptoms, with the exception of the absence of this sensitive spot to which Dr. Morris has called our attention. I operated on the boy and found what I called a normal appendix and I said to the doctor, "Well, doctor, we will have to look around for something else. Maybe this boy has tonsillitis, pneumonia, or something of that sort." We examined him carefully afterward and found that he had a right-sided lobar pneumonia.

DR. ALBERT GOLDSPOHN, Chicago.—After operating for retroversion of the uterus in a number of cases and having the appendix practically in my hand, so that I could have removed it at the time, but dropped it back because it looked normal, for fear of criticism on the part of those who were looking on, then having to operate on such patients in less than eight and twelve months, respectively, as emergency cases for violent appendicitis, is experience that for me outweighs a great mass of sentiment; and until gentlemen can prove that the appendix has a function, until they can prove we need it far more frequently to perform appendicostomy to treat the colon, than has so far been indicated, I shall consider it my duty to remove the appendix, if I can do so without hurting the patient particularly, by prolonging the operation a few minutes. I consider this so much my duty that it has induced me to forsake my favorite child in the line of retroversion operation, by omitting the bi-inguinal route and adopting median section and doing round ligament transplantation into the abdominal wall, for retroversion.

In regard to the diagnosis between tubal or ovarian disease and the appendix, that is a serious question. A very important matter which comes up in this connection, is that we ought not to operate for tubal or ovarian inflammation in the acute stage; that we have no business to operate until we have given nature a chance to subdue the inflammation in these parts, and if we do this we will do less operating, we will leave much more, we will do the patient greater benefit if we wait until the acute condition has subsided. That is correct doctrine in regard to infection so far as it pertains to the genital organs. The opposite is correct doctrine, when it pertains to inflammation in such a snake in the grass as the appendix. We do not know where and when it is going to move.

A girl's modesty is not wounded nor her character reflected upon by a diagnosis of appendicitis and an operation for it. The opposite is true of tubal or ovarian disease. That is all right, but a great many of these girls are operated upon by men who think it is sacrilegious to introduce the finger into the vagina. These men often consider the appendix involved when there is really nothing the matter with it, or the patients may have what we call extrinsic appendicitis, simply an external inflammation which will subside after the source of inflammation is removed, the real trouble being in the tube and ovary. If some of these cases were properly diagnosticated at the outset, the chances are that no operation would be required at the time and probably none later.

This matter of diagnosis between tubal disease and appendix trouble is of such extreme importance that the man who will probably succeed best in making an accurate diagnosis in these cases, is the one who is continually educating his tactile sense by vaginal bimanual examinations. He is the man who has an

eye, so to speak, in his finger and he will make this important distinctive diagnosis most frequently, which will lead to the right treatment. Therefore, I contend that appendicitis in women should be attended to chiefly by the gynecologist.

DR. ALEXANDER HUGH FERGUSON, Chicago.—I think the only reason why appendicitis is a gynecological disease is because it occurs in a woman. If it is a gynecological disease in a woman, it ought to be a gynecological disease in man, so far as pathology goes (laughter).

This subject of appendicitis is always with us. I have laid down certain rules for myself when and when not to remove the appendix that is not entirely inflamed, after opening the abdomen for other purposes. 1. History of attacks of appendicitis condemns it, with or without fibrous adhesions. The best protection to a patient is to have the appendix removed. 2. When I get an appendix that is cord-like and constricted, bound down and liable to become more constricted. 3. If I find by feeling that the proximal portion of the appendix is quite cord-like I remove it.

I depend upon my sight and feeling as to whether I remove the appendix or not. I may say, however, that my rule is to remove it and it is the exception to leave it. If there has not been a history or a suspicion of trouble in the appendix, and it appears and feels normal, and I have plenty of other work to do on that patient, then I let it alone. The appendix can be let alone if appendicitis is secondary to tubal trouble, because the inside of the appendix is not inflamed; it is only inflamed from without. Such appendices, however, are usually removed; but, as I have said, if I have a great deal of work to do in the pelvis of the patient, I let the appendix alone. This is safer for the patient, even though another operation is called for later on.

With regard to the point brought out by Dr. Carstens, that pus will drain always in the direction of least resistance, and that that is through the wound over the appendix in extreme suppurative cases, this assertion is not supported by experience. We have passed through that stage for the reason that postmortem examinations have taught us that many patients die, not from suppurative appendicitis but from the suppurative peritonitis following it. If we open the abdomen in these corpses we find pus around the gall-bladder, around the kidney on both sides, and the pelvis also is full. Morrison's pouch alone holds about a pint. For the purpose of draining all these places I use a scoop, a sort of long spoon, which will enable me to get out a collection of pus from any part of the abdomen. First, remove the appendix. You may have a gangrenous appendix with abscess to deal with, but you want to find out if there is anything in the pelvis that needs attention. I pass this spoon down into the pelvis with antiseptic precautions, and not infrequently get it loaded with pus. If the patient is a woman, drainage through the vagina

is established, and if a male a median drainage is put in. I pass a spoon through the wound up into the right lumbar region where, very frequently, I get a gush of pus and then I drain through the lumbar region. From the lumbar puncture I can go up into Morrison's pouch with the same spoon and often find pus. This calls for a drain to extend into it and emit through the lumbar puncture.

I am convinced that I have saved probably twenty-five patients by extensive drainage in these extremely and badly neglected cases. If the streptococci are at work you usually lose the patient, but if the infection is due to the colon bacillus or a number of other germs which are not as virulent as the streptococcus, then the patient will likely get better.

I would like to ask Dr. Morris a question, inasmuch as he has brought forward this point for diagnosis—namely, has he differentiated between the reflexes of the twelfth pair of dorsal nerves where we get hyperesthesia and sensitiveness, and where these nerves as they come to the border of the rectus muscles wind around, and are very sensitive in pelvic conditions and in appendicitis cases? And has he demonstrated a system or method to find out if he is really pressing upon these deep ganglia or pressing upon the cerebrospinal nerves instead of the sympathetic?

DR. ILL (closing the discussion on his part).—I have seen trouble with the use of catgut for the reason that the size used has been too large. Operators have used large-sized catgut when they should have used a fine size. The tissues are delicate and do not need large-sized catgut. Again, the tissues slip away from the larger sizes of catgut when it is used.

I have never been obliged to resort to lumbar puncture, although my assistants have done it, but they do not think it is of any advantage. As to rectal infusion with the level of the water one foot above the rectum, I should say that that pressure is too great as the patient would be unable to retain the water. The level of the water should be directly on the level with the rectum so that there is a constant inflow and outflow with every respiratory action.

As to the removal of the appendix in conjunction with other operations, I do believe in it unless the appendix itself is diseased. I think if these appendices are carefully examined, many of them will be found normal. Dr. Goldspohn has been unfortunate if he has had a series of cases in which the appendices afterward became acutely diseased. In fact, all appendices after removal should be sent to, and examined by, a pathologist. I am sure many of them will be reported normal and this has led me to be still more careful and conservative.

DR. MORRIS (closing the discussion).—I wish to mention one point in connection with Dr. Ill's paper—namely, according to statistics his death rate in cases of appendicitis with infection has changed from 18 to 3 per cent., and I think it will now fluc-

tuate between 3 and 0 per cent. in his next series of 300 or 400 cases. I hope the paper read by Dr. Ill will be read in Europe. I have just come from the International Medical Congress, which was held at Budapest this month, and I found that over there they are threshing over the old straw. They were taking up the questions which we have settled long ago, and were talking about a death rate of 26 per cent. in cases of appendicitis with infection and pus. Dr. Ill has found in infected cases, that is, taking 11,000 cases from various hospitals, that the percentage mentioned is not quite the average death rate to-day in European hospitals. The death rate in American hospitals is less than in European, but it can be reduced to 1, or 2, or 3 per cent., taking all classes of appendicitis.

With reference to this matter of multiple drainage, I find it is unnecessary in my work. I find gauze packing unnecessary. The fanciful treatment of the stump of the appendix, too, I find unnecessary.

Dr. Baldwin's point is very important as compared with the remarks made by Dr. Jonas. Dr. Baldwin had a case in which there was tubal pregnancy with simply congestion of the appendix, and yet the point of hypersensitiveness of the right group of lumbar ganglia was not evident. That is important as showing an exception to my point and it is valuable to have as much negative testimony as positive testimony brought to bear on this subject, because I do not wish to deceive anybody, least of all myself.

The case also, to which Dr. Jonas has called our attention is valuable. He had an opportunity to look for the point in a case of pneumonia. There was absence of tenderness at the point to which I have called your attention, although a diagnosis of appendicitis was made and an operation performed for the removal of the normal appendix. I myself got caught on one case of pneumonia that I operated on for appendicitis some years ago. I had another similar case, but did not get caught by the second one.

Dr. Carstens says that he likes to let the appendix alone when it is normal or seems to be, and Dr. Goldspohn thinks there is a morbid sentiment displayed in the matter. My position for thinking it is well to let the appendix alone when it is not diseased as a rule is this: we open a small point of infection in the midst of an unprotected field, a field that is not protected by local hyperleukocytosis, and to operate in a case of that sort requires a higher degree of skill and more care than I would like to assume for the patient. If Dr. Goldspohn were operating on me for something and he came to my normal appendix, I would let him take it out, but I do not believe that we should teach that the normal appendix may be removed when it happens to be in sight, as a rule, because of the gravity of opening a small point of infection in a field unprotected by hyperleukocytosis.

Dr. Ferguson says that no form of appendicitis is protective to the patient. Dr. Lee, of New York, held the same view. He believed I was wrong about it. He came into my office one day in a triumphant manner with an appendix in a bottle and said, "here is one of your cases of protective appendicitis in in which the appendix contained pus." He had been watching this case for a year. An examination of sections of this appendix was made by a competent pathologist, who said there were no changes such as we find in cases of protective appendicitis. It was not a case of appendicitis obliterans, and I had the last say in that case after all.

Dr. Ferguson's point about the reflexes of the twelfth pair of dorsal nerves is one to which I have given a good deal of attention, and we can determine it in these cases by the superficial character of the tenderness. It cannot be described very well in words. You know pretty well when you press upon a lumbar group of ganglia whether it is hypersensitive or not and the patient knows, too. Sensitiveness is more superficial in cases in which the twelfth pair of dorsal nerves is irritated.

CESAREAN SECTION, ABDOMINAL AND VAGINAL, COMPARED AND CONTRASTED.

BY
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I WISH to preface my remarks by saying that in my opinion, in discussing obstetrical operations, and in obstetrical practice, too little attention is paid to the life of the unborn child and too little to the morbidity of both the child and the mother. Obstetrical procedures should be conducted not only with the view of permitting both to survive the ordeal, but with the further purpose that neither shall be harmed thereby, to the end that the mother recovers completely, and that the child be not hindered from developing into a normal adult. The only excuse I have to offer for referring to vaginal incisions of the uterus for purposes of delivery as Cesarean section, is that many others have done so before me and the rôle of the reformer is neither profitable nor popular.

I wish first to compare the inherent difficulties of the two operations. In vaginal section the work must be done in a more contracted field and one less well lighted than obtains in abdominal section. In the vaginal operation also, the operative field is more obscured by blood. Practically perfect asepsis is less easily attained and maintained in the vaginal than in the abdominal operation. The delivery of the child after the abdominal section is without difficulty while, not infrequently, the delivery of the child after vaginal section is quite as difficult and more time-consuming than the section itself.

Second, let us inquire what obstacles to delivery each of these operations removes or circumvents. The vaginal operation removes only the obstruction offered by the cervix, and circumvents no others. By the abdominal operation all obstacles to delivery that lie at or below the pelvic brim are avoided. The placenta as an obstacle is frequently met in the abdominal operation and seldom met in the vaginal, except in cases of placenta previa when it is always encountered in the vaginal operation, and always missed in the abdominal operation.

What character of wound is left to be repaired after delivery by abdominal section and what after delivery by vaginal section?

The former is an incised wound, the latter an incised wound more or less complicated by contusion and laceration. After closure the abdominal wound, or wounds if one prefers to call the uterine incision a separate wound, is, because of the location and dressing, effectually protected from the postoperative infection. After the vaginal operation no such effectual protection against infection is possible.

In the abdominal operation the peritoneal cavity is always opened, in the vaginal operation it is not opened save by accident. The abdominal operation consumes less time than the vaginal. The amount of blood lost in the two operations is practically the same, except in cases of placenta previa, in which cases there is a greater blood loss in the vaginal operation. The chances for infection are greater in the vaginal than in the abdominal operation, in that the resistance of the tissues invaded is less in the former than in the latter.

Should infection occur the danger therefrom would be greater after the abdominal operation. It is no doubt true that the patient and friends will consent more promptly to a vaginal than to an abdominal operation. This is due chiefly, I think, to an erroneous belief in the comparative safety of vaginal operations; and secondarily to the dread of a belly scar which by the way in a clean case properly treated should be practically invisible after a few months. In both of the operations the mortality rate is higher when they are done in the presence of infection. In the vaginal operation one is operating in, and through, the infected area; in the abdominal operation the infected area is not disturbed. It would seem fair to assume that the presence of infection adds no more risk to the abdominal than to the vaginal operation and possibly less. The vaginal operation does not avert the dangers to the soft parts, other than the uterus, attendant upon an accouchement forcé, *i.e.*, lacerations and fistulæ; the abdominal operation does so completely.

As to the possible remote results of an untoward nature of the two operations I have shown in a previous paper[1] that the danger to be feared from rupture of the uterus in subsequent pregnancies, from adhesions, and from hernia, following the abdominal operation is too slight to deserve serious consideration. Peritoneal adhesions will of course not form as a consequence of the vaginal operation unless the peritoneal cavity is invaded, nor will this operation superinduce hernia.

[1] *Journal A M. A.*, March 20, 1909, vol. lii.

Concerning the danger of rupture of the uterus in subsequent pregnancies after the vaginal operation one may not speak with great positiveness, because of the sparsity of accumulated evidence bearing on this point, due to the newness of the operation.[1] Judging however from our knowledge of the principles involved we are warranted in concluding that there is as great, and probably greater, danger of rupture of the uterus in subsequent pregnancies after the vaginal operation as after the abdominal operation. The abdominal operation offers the child a better chance to live and develop normally than any other method of delivery.

In the vaginal operation the child is subjected to all of the dangers, immediate and remote, attendant upon an accouchement forcé, barring those consequent upon an undilated cervix. It is well to recall the fact here that cerebral hemorrhage in the child is a frequent result of *accouchement forcé;* that this accident always entails permanent disability, and that in 30 per cent. of the cases epilepsy develops.

In my paper previously referred to it is shown that the maternal mortality of the abdominal operation is 1.58 per cent. I know of no statistics from which one would be warranted in drawing conclusions as to the maternal death rate of vaginal Cesarean section. It is safe to assume however that when done for delivery at or near term, the rate would be about that of delivery by high forceps, which, according to the statistics from the clinics at Breslau, Budapest, Berlin, and St. Petersburg[2] varies from 0 to 6.5 per cent. It is hardly necessary to say that in speaking of the mortality of these operations I mean the deaths due to them and not all those following them, for the majority of the deaths following them are due to the conditions for the relief of which the operations were done, and not to the operations themselves. In comparing the mortality of these operations it must be remembered that the delivery of the child after the abdominal incision is an element of small moment, while in the vaginal operation the delivery of the child is a matter of equal or greater consequence than the incision of the uterus. It is likewise safe to assume that the maternal morbidity following the vaginal operation for delivery at term is about that of the high forceps operation which, according to Reimann (*loc. cit.*), is 23 per cent. The maternal morbidity following abdominal Cesarean section is less than that following the high forceps

[1] Dühressen advised the operation first April 1, 1895.
[2] *Progressive Medicine*, September 1, 1908, p. 208.

operation. Newell of Boston in a personal letter, speaking of abdominal Cesarean section says: "I believe the morbidity in these cases is very slight and certainly very much less than could be claimed for the ordinary obstetric operation in the same class." Given an absolutely or relatively large pelvis and vagina or a dead or non-viable fetus and many of the objections to the vaginal operation do not obtain, and conversely with similar conditions many of the arguments favoring the abdominal operation do not apply.

Summary.—Vaginal Cesarean section is a more difficult operation than abdominal Cesarean section. By the abdominal operation all obstacles, at or below the pelvic brim, to the delivery of the child are avoided. By the vaginal operation the only obstacle removed or avoided is that offered by the cervix.

The vaginal operation does not leave an ideal surgical wound; the abdominal operation does.

In the abdominal operation the peritoneal cavity is necessarily and intentionally invaded; in the vaginal operation it is invaded only by accident. The abdominal operation consumes less time.

The loss of blood is about equal in the two operations, except in placenta previa where it is less in the abdominal operation.

Infection is less likely to occur during the abdominal than during the vaginal operation, but if it does occur the results are more apt to be disastrous after the abdominal operation. There is more danger of postoperative infection in the vaginal operation. Preexisting infection adds to the risk of both operations but probably more to the vaginal than to the abdominal.

The probability of untoward remote results is about equal in the two operations and great in neither.

The maternal mortality of the two operations is about about the same. The maternal morbidity in the abdominal operation is less than in the vaginal.

The fetal morbidity and mortality of the abdominal operation is practically nil, that of the vaginal operation is slightly less than that of accouchement forcé. The majority of patients would probably object less to the vaginal operation.

CONCLUSIONS.

1. Given a living and viable child the abdominal operation should be the operation of choice except in women with relatively large pelves and vaginæ.

2. This exception does not apply in placenta previa. It is

extremely doubtful if vaginal Cesarean section is ever indicated in placenta previa.

3. The vaginal operation should be the operation of choice in cases in which a quick delivery is necessary and the only obstacle to delivery is an undilated os. In many multiparæ for instance the vaginal operation is to be preferred.

4. The presence of infection in a given case should not decide us in favor of either operation, but the fact that its existence adds to the mortality of both, should admonish us that neither are to be regarded as operations of *dernier ressort.*

5. With a dead or dying mother, and a living, viable child, the abdominal operation should be done.

6. A correct knowledge of the indications for these operations and a timely resort to them will materially reduce both the maternal and fetal mortality and morbidity which now obtains in obstetric practice.

DISCUSSION.

DR. E. GUSTAV ZINKE, Cincinnati.—I have not been diappointed in this excellent paper. I expected Dr. Porter would say just what he has said, because of the position he took in a paper on a similar topic read by him before the Southern Surgical and Gynecological Association in St. Louis last fall. From a literary point of view the doctor's effort is a gem, but the premises he has assumed are wrong.

Vaginal Cesarean section was never intended to be a competitor of abdominal Cesarean section. Therefore, the arguments advanced fall to the ground. When Dührssen suggested and formulated this operation (vaginal hysterotomy) his object was to reduce, if possible, the frightful mortality and morbidity, maternal as well as fetal, attending the procedures falling under the head of accouchement forcé, that is, manual, balloon, and metal dilatation. Vaginal Cesarean section was invented for this purpose, and this purpose only. Therefore, it is not an operation to be employed in cases of narrow or contracted pelvis. Nor can I admit that, upon comparison, abdominal hysterotomy is an easier and safer operation than vaginal Cesarean section. Both the vaginal and abdominal Cesarean section have definite places in obstetric surgery. Their positions must not be confounded. Vaginal hysterotomy takes the place of the unsurgical as well as unscientific procedures of digital, balloon, and metal dilatation. He who has had ample experience with the difficulties encountered in attempting dilatation of the cervix by any one of these methods, will know that these interferences often pave the way for extensive lacerations, sepsis, and hemorrhage, and, if the patient survives the operation, she may succumb to septicemia or recover only to be an invalid forever. Have you

read the interesting cases, so plainly and honestly reported by Williams, of Baltimore, in his splendid text-book? If not, you must read what he has to say on this subject, and you will find that your own experience will agree with his.

It was to find a rational substitute for the unscientific and unsurgical methods that Dührssen invented vaginal Cesarean section. It is, therefore, an operation not to be selected in cases of narrow or contracted pelvis; on the contrary, the pelvic capacity must be ample. This is one of the prerequisites for the operation. With it the old-time accouchement forcé becomes an operation of the past. If my estimable friend Dr. Porter will view Dührssen's operation from this standpoint, he will, I think, grant that there is a place for vaginal Cesarean section. I performed the operation for the seventeenth time last week. It does not seem to me very difficult of performance. Indeed it is a comparatively easy operation, and he who knows how to do it properly is, usually, surprised to discover how promptly the membranes drop into the vagina after the division of the cervix. The membranes are easily ruptured and, in vertex presentations, delivery can be effected quickly with the forceps; or, if it be a breech presentation, the child may be readily extracted by the feet. The operation is contraindicated if the patient is septic.

DR. J. HENRY CARSTENS, Detroit.—I heartily indorse the remarks that have been made by Dr. Zinke. These are not interchangeable operations. They are distinct operations and have distinct indications. Abdominal Cesarean section is for cases of narrow pelvis where the child cannot be born in the natural way. That is all there is to it, and there is added to that vaginal Cesarean section for those cases where the pelvis is amply large enough, but where for some reason or other prompt delivery is to take place, and these cases are really the cases of eclampsia, where quick delivery is to be done and where, instead, as Dr. Zinke says, you have balloon dilatation, and the like, one can slit the cervix and deliver the child in five minutes, and can then sew up this little incision. I have taught that every practitioner who practises obstetrics ought to be able to do that operation. We can tell practitioners that it is necessary sometimes to do such an operation, but some one will say the general practitioner cannot do it. Well, if he cannot do it, that is none of my business. But I tell them it is necessary sometimes. After we tell them *it is up to them to be able to do it, we are willing to teach* the general practitioner and show him how to do these operations. If he cuts into the bladder or rectum and has an ununited wound or a vesicovaginal fistula, it does not hurt the woman any because she is better off than she would be if buried 6 feet under the ground. Some of us are able to repair these injuries.

There is only one other point, so far as I can see, in which there is room for debate, and that is the question of placenta previa. It is a question whether we should do in a roomy pelvis a vaginal Cesarean section or an abdominal Cesarean section, and I think

that here we can debate the question. Perhaps in one case it would be better to do abdominal Cesarean section, while in another case we can just as well do vaginal Cesarean section and stop the hemorrhage.

DR. HUGO O. PANTZER, Indianapolis.—I would most cordially indorse what has been said by the essayist and the speakers, with one exception—namely, I think there is some ground by which the two operations can be brought into competition. Dr. Porter in his paper failed to mention environment of the patient. If we have a patient in a good environment, all is well. But the opposite may obtain. I recall the case of a primipara, twenty-six years of age, who had two eclamptic seizures of great violence. The environment was most undesirable for abdominal section, and additionally I had no adequate assistance. I there preferred to operate from below. The delivery was not quick. Anyway, this is not the quickest route in primiparæ, statements to the contrary notwithstanding. In multiparæ, I agree, the difficulty in operating per vaginam is lessened. I have never been able to console myself to making incisions about the vulva for the purpose of gaining space. The difficulty of making repair in these cases is great. In this particular case I imitated nature and took time to make gradual dilatation of the vaginal outlet. It took an hour and fifteen minutes to deliver the child, but both mother and child survived. The fetal heart sounds were continuously observed and were the guide in making and interrupting traction. I saw the mother two months later. I found the uterus had united except at the vaginal portion which awaits repair. If I may anticipate a rupture following vaginal Cesarean section or abdominal Cesarean section I believe I would ordinarily prefer to chance it with the lower part.

In consideration of what was said by Dr. Porter with reference to disregard of the welfare of the child, I wish to say I desired to make that point in connection with the case I reported. The accouchement forcé was resorted to with the utmost deliberation. Fetal heart sounds were kept under control all the time; traction was intermitted whenever the heart in the least showed flagging. The fetal heart was permitted to recover fully before the traction was resumed. Speed in delivery is secondary to safety of the child. Where the safety of the mother is not imperilled, as when convulsions have been few, but little severe, and not immediately present, slow delivery in the interest of the child is demanded.

DR. K. I. SANES, Pittsburg.—To my mind the possibility of sepsis in vaginal Cesarean section cannot be great. To me the vaginal operation is less dangerous from the standpoint of sepsis than the abdominal; in fact, this feature is one of the reasons why I prefer the vaginal operation. We may get an eclamptic case in which the uterus has been handled a great

deal and has become septic. In such a case I would prefer the vaginal Cesarean, because the operation, being an extraperitoneal one, there is no danger of carrying infection up through and into the peritoneal cavity.

And, even in badly bleeding cases of placenta previa with the os still contracted, the vaginal Cesarean may be preferable to the abdominal. The postoperative shock of abdominal Cesarean is far greater than that of vaginal. In cases, therefore, already greatly shocked as a result of the profuse hemorrhages, vaginal Cesarean has the advantage. In connection with this we may mention also the possibility of postoperative intraabdominal adhesions, and hernia that may follow abdominal Cesarean. I think, then, that the vaginal Cesarean section has a place in obstetrics for a certain class of cases of eclampsia, and even placenta previa.

DR. PORTER (closing the discussion).—Dr. Zinke says that Dührssen did not intend that this operation should displace vaginal Cesarean section. I have never had the pleasure of knowing Dührssen personally. I am not a mind reader and I do not know what he intended, but I do know that vaginal Cesarean section has been advocated for placenta previa with a viable child. It has been advocated and done in cases of primiparæ, not with contracted pelves, but in primiparæ that required from thirty minutes to an hour to deliver after it was done. Again, it has been advocated on this floor in cases of placenta previa. My point in this paper is not to rule out vaginal Cesarean section and supplant it by abdominal section, but to try to show clear indications for both operations, and if the argument in my paper is correct it resolves itself into this, that the abdominal operation is the operation of choice in primiparæ with ordinary pelves.

I undertake to say that the death rate and morbidity rate to the mother is less. Has the unborn child no right at our hands? I maintain it has. And yet no one in the discussion has said a word about the rights of the child. I make the assertion that the delivery of the mother after vaginal section, all other things being equal, entails as much risk in the way of sickness as does an abdominal section in good hands done promptly; and for that reason I would not do vaginal Cesarean section and then resort to accouchement forcé after it to deliver the woman. Therefore, I say in the ordinary primipara with convulsions at term with a viable child, there is no good surgical reason, in my judgment, for delivering that woman through the vagina. I have done it, but I am not going to do it again, because I do not think it betrays good surgical judgment or good surgical sense. I think the child has some right in the premises.

Dr. Carstens said it is only to be resorted to in cases of narrow pelvis. I have already answered that point. I do not think that is true at all. Were I a primipara and about to be confined, with convulsions, if I were in my right mind, the best operator

would not operate through my vagina because he cannot do it as well and as quickly as a good operator can through the abdomen. The shorter you make the delivery, after the incision into the cervix, the greater the danger to the child and to the mother. When a woman is in convulsions, you are anxious to get hold of the child; you want to get it away from its environment, you want to give it a chance to live, and you want to get the woman out of bed as soon as possible after the delivery. All things considered, I prefer abdominal section. I have done the other operation, but I will not do it under such circumstances again. Rupture, I think, will be more frequent after vaginal than after abdominal section, simply because a greater strain is put on the scar in the cervix than would be put on a scar in the body of the uterus. But I have no means of knowing whether that is true or not. I am only judging from a few statistics I could get together on both sides of the question and from my knowledge of the mechanism of labor and of the parts concerned.

It is said there is less shock from operating below. It seems to me that we have been worshiping long enough this fetish of shock. I would like to know how any man knows that. My patients do not have more shock after the abdominal than after the vaginal section, unless they have more hemorrhage and then of course they have more shock. Or, if I work in the upper region of the abdomen and maul around there, the patient gets shock. There is no shock in either the vaginal or the abdominal operation unless there is hemorrhage. My reason for saying that there is more danger of sepsis occurring from the vaginal than from the abdominal route does not need any explanation. If infection should occur, it would be of more moment probably after an abdominal operation. Another factor to be considered is this: if there is any more resistant tissue to infection, provided it be given half a show for its vitality, than the peritoneum, I do not know where it is in the body. The vaginal tissues are not so resistant.

Finally, my point was to raise a plea in behalf of the child in the first place, and in the second place to make a plea in behalf of the mother; not for her life alone, but for her subsequent feeling of well-being, and I believe that with a clear understanding of the two operations and more frequent resort to them, we will have fewer invalid women and certainly have a larger percentage of children reaching adult life; but more than that, with this operation we will wipe out a large number of this 30 per cent. of epileptics, whose epilepsy depends upon injuries received as a result of the accouchement forcé which is absolutely necessary, even though vaginal Cesarean section has been done in cases of primiparæ, to say nothing of every woman with contracted pelvis.

METHODS OF DRAINAGE IN PELVIC AND ABDOMINAL SURGERY.

BY
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Columbus.

THE objects of drainage in abdominal and pelvic surgery are two-fold,—either, first, to drain a cavity from which we expect more or less discharge of some sort during the following few hours or days; or, second, to keep healthy tissues from contact with unhealthy surfaces so as to reduce to a minimum the possibilities of infection, or of undesirable adhesions.

As an illustration of the first class may be mentioned abdominal pregnancy, in which the sac where the fetus has been resting may need drainage for several days before its surface will be in condition to adhere. In the same class would come those rare instances of ovarian tumors in which marsupialization may be necessary. We see the same also in our cases of cholecystotomy, in which we expect drainage to ensue for days or weeks after the removal of the stones.

The most frequent uses for drainage, however, will come in the second class, and include cases of pelvic inflammatory diseases in which extensive raw surfaces are left, and especially those in which the remaining surface has been a part of the wall of an abscess. Another very common need is in cases of appendicitis with gangrene or rupture of the appendix, and with more or less extensive pus formation.

In cases in which we have a large raw surface, which cannot be covered by peritoneum, the oozing fluid forms an excellent nidus for infection, while at the same time loops of intestine coming in contact with these raw surfaces are likely to form very extensive and dense adhesions, which may interfere permanently and even disastrously with peristalsis. If these surfaces have in part formed the walls of an abscess, the danger of infection is very great if a clean peritoneum comes in contact with them, while if no peritonitis is excited adhesions will be almost inevitable.

While the word drainage seems hardly appropriate in the latter class of cases, it has been employed so long that the use

of the word seems to be established. Frequently, however, writers use the word "packing" instead of the word "drainage," and say that a given cavity was "packed with gauze." The latter word is, perhaps, preferable to the former, but is objectionable because the verb "pack," with its derivatives, means that more or less firmness has been employed in placing the material, as when a person packs a trunk; whereas, in using gauze for the purposes contemplated, the end is best accomplished if the gauze is placed in a fluffy way, so as to lightly support the parts, and give at the same time ample surface for the absorption of any discharge or exudate.

The older method of drainage, by which a tube of either rubber or glass was passed into the culdesac, at the lower angle of the incision, this tube perhaps being replaced after a little by a wisp of gauze, I never found entirely satisfactory. It required a good deal of attention on the part of the nurse, there was liability to infection, it left a weak point in the abdominal wall, and in a number of reported cases it resulted in a fecal fistula. Such drainage passes through considerable territory previously free of infection, and increases materially the danger of ileus, since loops of small intestine will be in contact with the tube, and adhesions involving the small bowel are much more apt to make trouble than similar adhesions involving the sigmoid.

In an ordinary pus tube case, acute or chronic, we find the pelvis filled with the distended tubes, bedded in exudate with their corresponding ovaries, which may or may not be infected, the retroverted uterus being probably involved in the common mass. In operating upon these cases the lines of cleavage are found so that the general mass is lifted up and forward, then the tubes are removed, with or without the ovaries as the case may require, and hemostasis secured in the ordinary way. If the operation has been successfully performed, the tubes have been enucleated without rupture; but frequently, in spite of every care, rupture has taken place, with the escape of more or less pus which is or is not sterile according to circumstances. If there has been no escape of pus we simply have a raw surface left, which by no possibility can be covered by peritoneum, unless the retroverted uterus is again dropped back, and the peritoneum from in front stitched to the sigmoid and tissues behind. Such a reposition, however, leaves everything in bad condition, and is, of course, undesirable. If pus has escaped it will usually be sterile, and will do no harm, but of its sterility

one can never be quite sure, hence must always guard against the possibilities of infection. It is in these cases, therefore, that drainage of some sort is of very great importance if the best results, or even good results, are to be obtained. If this drainage, or packing, or "fluffage," if I might be permitted to coin a word, is resorted to, and the end of the gauze brought out at the lower angle of the incision, we not only have necessarily left a weak point where a hernia may develop, but the discharge must run up hill, and when the gauze is withdrawn the last point to heal—namely, the opening in the abdomen—is in exactly the wrong place.

In these cases, therefore, I have for many years opened the vault of the vagina, having previously always thoroughly washed out the vagina in anticipation of such use, and then passed the end of a strip of iodoform gauze from above downward through this opening, after which the rest of the gauze is packed in, in as fluffy a way as possible, so that the denuded or infected surface is entirely covered by the gauze. This covers the denuded posterior surface of the uterus, as well as the other boundaries of the pelvis, and on this are carefully arranged the ovaries and the sigmoid flexure of the colon. The omentum is also brought down in front, and arranged so as to cover any interstices which may be left. If the operator fears some disarrangement a few catgut stitches can be used to catch the parts together. We thus secure a complete floor of the abdomen, and a complete roof of the pelvis. No peritoneum comes in contact with raw or infected surfaces. After the "fluff" drainage is thus in place, and the toilet of the pelvis completed, the abdominal incision is closed in the operator's customary way.

After the operation is finished the vagina is carefully wiped out so as to free it of any blood or pus. The piece of gauze protruding at the opening in the vault is brought down a little, so as to be readily caught for removal, and another piece of gauze packed into the vagina. This second piece should be so introduced as to hold the cervix well up and back, so as to relieve any strain upon the fundus. This second piece of gauze can be removed in two or three days and, if there is much discharge, creolin or other antiseptic douches can be used, until at the end of a week the first piece is withdrawn; after which ordinary sterile douches can be used for cleanliness until healing is complete. If the opening at the vault has been made of good size there is no retention whatever and the entire cavity rapidly closes.

Any pus which may be present is absorbed by the gauze, and the same is true of any oozing of blood. Within a very few hours the tissues on top of the gauze have adhered together, and a firm barrier is thus presented to any infection from below. At the end of a week this roof over the gauze is thoroughly established, and the gauze can then be removed safely, and with a minimum of discomfort to the patient. Care should be taken that the opening into the vault of the vagina is of ample size, so that the gauze may be removed easily, and that the opening may not close until the tissues above have sunk down so as to obliterate the space formerly occupied by the gauze.

In removing the tubes great care is taken to see that each is removed thoroughly into the horn of the uterus, so that there will be no lumen left to serve as a nidus for trouble. This removal leaves a V-shaped gap into which is brought a loop of the round ligament and fastened by a continuous chromicized catgut suture, which includes both flaps and between them the loop of ligament. In this way no raw surface is exposed and the ligament is firmly attached. If it seems wise to still farther hold the fundus forward, the uterovesical fold is detached with care and reattached at the fundus.

It is well known that in cases of pelvic infection operation during the early stages of the disease has usually been attended with quite a pronounced mortality. For these reasons a number of abdominal surgeons have recommended that the patient shall be kept at rest, and nothing done until the acute stage has passed and the conditions have become chronic. In this way it is claimed, and undoubtedly with truth, that the mortality is greatly reduced. The objection to this delay, however, is that tissues which when the patient first comes under observation are healthy, become involved in the infection as the days and perhaps weeks go by, so that the final operation requires much more extensive sacrifice of parts than would an earlier operation. That is, what were originally tubal abscesses may become tuboovarian abscesses, requiring the sacrifice perhaps of all the appendages. By the method of treatment suggested above, early operation may be undertaken without any fear of untoward results. Prompt convalescence may be confidently expected, and we may be sure that viscera will be saved that otherwise would be lost.

In cases of appendicial abscess, the usual methods of drainage are so satisfactory that nothing remains to be said; but in cases

in which the abscess is small, or is not found directly under the line of incision, it is frequently much better to drain with a wick passed through a stab incision to the outer side, so that the primary incision can be completely closed. The stab incision is small, and is made through thick tissues, so that there is practically no danger of hernia.

In treating these local infections of appendicial origin, and the same is true of pelvic abscesses, it is frequently advantageous to wipe out the cavity and the infected area with a weak solution of the tincture of iodine. After the iodine has been thoroughly applied, and the tissues wiped dry, the drainage wick can be introduced and brought out through a stab incision, and, before more pus will have formed than can be taken care of by the gauze fluff, adhesions will have formed around the gauze to protect the general peritoneal cavity.

In a few cases I have had occasion to reopen the abdomen, months or years after this operation, and have been surprised to find how natural the culdesac looks. The peritoneum has reformed, the uterus is up in good position, no loops of intestine are found adherent, and all the parts seem to be thoroughly restored to a normal condition. In not a single instance have I had any ileus to contend with.

DISCUSSION.

DR. ALBERT GOLDSPOHN, Chicago.—I agree with the essayist with regard to the efficiency of the capillary drain and the manner in which he has used it, only I think it is necessary oftentimes, in order to get better and larger efficiency of the use of the drain, to have a short glass tube in the abdominal incision when we drain there and also one in the vaginal incision for the ventral route. I have had constructed a short oval glass tube with a flange at its outer end, 1 1/2 inches long, which projects through the abdominal parietes and is wide enough to have the gauze protrude through it without compression. This enables me to make an exact union of all layers within the abdominal wall—notably the fascia in front of the recti, close up to the tube from below and down to it from above —so tightly that when the tube is removed this part of the wound will collapse with the respective structures in apposition, and we get primary union in spite of this drainage, provided it is not left in more than two or three days.

A gauze drain is much more efficient when it is not subjected to compression in the abdominal wall. In the vagina, if we make as large an opening as the author indicates, we frequently cut across branches of the uterine artery going to the posterior

vaginal insertion and thus get undesirable bleeding. Some operators deceive themselves about this drainage, by making a puncture with scissors and placing gauze in a merely stretched opening without any protection against the contracting tissues. The muscular structures in the vaginal vault are sufficiently powerful to constrict the gauze and it is so nearly dead inside of two days that drainage is rendered nugatory. After trying a flattened and curved glass tube through the vaginal vault and finding it was too dangerous with reference to breaking, I now use a one-half inch lumen rubber tube doubled upon itself like a double-barrel shotgun with the inner ends open and surrounded by numerous perforations to overcome the stiffness. This double tube, about 3 to 4 inches long, is passed into a punctured and stretched wound in the posterior culdesac, with gauze inside of each lumen.

All this can be done through a punctured wound, which is stretched with forceps without incision. This rubber tube must be sufficiently stiff to prevent constriction of the gauze. The gauze can be removed from the tube and you may leave the tube if you choose. The length and curve of the tube can be suited to each case.

I would like to mention one point—namely, the essayist stated that early operation in these infected cases would enable us to work through healthy structures, whereas later if they become involved a subsequent operation would be more destructive. I deny that emphatically. All inflammatory affections which come from the uterus, tubes, and ovaries are practically never the cause of general peritonitis unless the cases are badly treated. Pelvic peritonitis is a self-limited disease and will soon find its limitation so far as spreading is concerned, and its virulence will be rapidly reduced, hence operating on such cases after two weeks offers a much better chance, both as to primary mortality and as to the amount of tissue which one may dare to save, of the woman's appendages, than does the early operation.

DR. WILLIAM A. B. SELLMAN, Baltimore.—I want to say a few words in addition to what Dr. Goldspohn has said. I am from Baltimore, the home of the Hopkins. Dr. Goldspohn has seen the operation referred to, but he has not observed the after-treatment of the case, after Dr. Kelly has introduced the gauze. Dr. Kelly separates the tissues in pus cases in draining the bottom of the wound; two days afterward, he himself, or his assistant, exerts gentle traction on the gauze and pulls out from 1/2 to 3/4 of an inch of it. The explanation is this: at the point where it comes through the vagina or, if it is an abdominal drain where it comes through the abdominal wall, there has been a collection of débris, or mucus, that comes from the cavity and a kind of cork forms which prevents drainage. The method which I have followed is that of Dr. Kelly, having learned it from him. It is this: on the second day and every day afterward I withdraw the gauze from 1/2 to 3/4 inch, until finally the

gauze is withdrawn entirely from the cavity. That allows granulation to take place, the gauze does not remain in to prevent granulation from occurring, and it keeps up constant drainage; the fluid comes out as if we were drawing water from a basin.

DR. J. HENRY CARSTENS, Detroit.—I must say that I have not been able to see the point with regard to this method of drainage, possibly because I may be a little dull of comprehension. When you take out a pus tube, you strip off more or less of the peritoneum. If you insert gauze it becomes adherent to the raw surface, and it becomes adherent to the peritoneum as well, on the side where there is no raw surface. If you pull the gauze out little by little, what have you got when you pull the gauze out entirely? It seems to me you really have the same thing you had before. The denuded places are still raw and the peritoneum on the other side, where you put in gauze, and where there was no raw surface originally, *has been denuded of its epithelium*. When the gauze is taken out you have two raw surfaces which will adhere. In other words, you have adhesions. That is the way I have always looked at it.

Formerly I put in gauze, especially when there was a good deal of oozing. It stopped hemorrhage and did nothing else; but for a great many years I have not used gauze, as I could not see the philosophy of it, and really it seems to me it does more harm than good. I drain once in a while by puncturing the posterior culdesac, and putting in a rubber tube, the size of a lead pencil, with a cross-piece not on account of the raw surfaces, but to drain the septic material and exudate that is thrown out by the peritoneum, which is fruitful soil for the development of microorganisms. I simply drain the septic material and leave the rest to nature, and I think my patients get along just as well as the patients of those who do otherwise. Sometimes adhesions will take place whether we put in gauze or not, but generally they become absorbed. All things considered, I cannot see the philosophy of using gauze for the purpose mentioned.

DR. BALDWIN (closing the discussion).—When the gentlemen come to read my paper I think they will find that many of their criticisms and suggestions are not well taken, because the object of the paper is to consider not the use of drainage for ordinary purposes, but its particular use to keep healthy tissues from contact with raw or diseased surfaces until the general peritoneal cavity is sealed off and danger of infection has passed. Gauze is not suitable at all for drainage when we expect considerable amounts of fluid to be discharged, but it is perfectly adapted for the purpose which is advised in my paper.

In opening the vault of the vagina I first make an incision from above, cutting between the blades of a pair of forceps introduced into the vagina and opened by an assistant. Having made the opening it is torn larger if necessary, and the tearing of the tissues instead of cutting obviates the danger of hemorrhage.

My paper was not designed to discuss in any way the amount of pelvic pathology which should make operation advisable. It simply discusses a certain use of gauze after an operation has been made, and when the pathological conditions are such as to lead us to fear adhesions, or infection, or both. Such a use of the gauze has reduced my mortality and morbidity to the vanishing point, and gives me results which I never secured before.

In my earlier experience I withdrew the gauze a little at a time as has been suggested, but later found that this was unnecessary, and, besides, was a great source of annoyance and pain to the patient. At the end of a week, however, its removal is accomplished with comparatively little pain, and the pain lasts but a moment.

I think Dr. Carstens will find his criticisms unfounded when he comes to read the paper. There is, of course, a raw surface left after the gauze is withdrawn, but the general cavity of the peritoneum is by this time thoroughly protected from this cavity, which rapidly closes. If any intestinal adhesions form they involve only the sigmoid, and we all know that it is the adhesions of the small bowel that result in colicky pains and ileus, and that almost any extent of adhesions may involve the sigmoid with impunity.

In many of these cases, in arranging the parts on top of the gauze, they are placed in the position in which they were before the operation, and all the surfaces in contact with the gauze are already raw from separation of previous adhesions. It should be well understood that the gauze "fluffage" advised is not to take the place of tubular drainage, but it is to be used for a different purpose, and to meet very different indications.

IS THE ROUTINE EXHIBITION OF THE PREOPERATIVE PURGE DEFENSIBLE?

BY

EDWIN WALKER, M. D.,

Evansville.

IN a paper read before this association at Cincinnati in 1906, I called attention to the great abuse of purgatives both by the laity and the profession. The people in general regard purgatives indicated in all ailments, and even take them when no disease exists. Practically every house has its "ever-ready" laxative. This state of affairs is due to the teaching and practice of the medical profession. Does not his family physician inaugurate every treatment with a cathartic? Even his surgeon, who professes scant faith in drugs, purges every patient before a surgical operation, no matter how simple. Can we wonder, then, that purgatives are almost universally employed? Yet every physician must know that their universal use is harmful, that they aggravate many diseases. In acute cases, serious consequences may ensue. They are not only powerless to cure constipation, but are the most frequent cause of this trouble. Constipation, in the vast majority of instances, is due to carelessness in habits and improper diet.

For the past five years I have noted in my histories, those who habitually use purgatives, and the results of correction of habits and diet, and it is astonishing how few are not promptly relieved by these simple methods. The few who are not, have some trouble which needs surgical or other treatment for relief.

Purgatives have a value in autointoxication and toxemia, but even in these they should be given on distinct indications only, for in many cases the poison is far out of reach of the cathartic, and its only effect is to weaken the patient.

When preparing the paper mentioned, I made quite an extensive search of the literature of the subject to inform myself how purgatives acted, and their exact effect on the human organism. The available information was very unsatisfactory; authors differing widely on the subject but all agreed, however, that they were irritants and are capable of producing enteritis. They

all produce liquefaction of feces, increase peristalsis and the formation of gas, the latter being due to excessive germ activity. This is exactly what we find in enteritis from any cause. Schmitt showed that normal constipated stools contain fewer germs and underwent decomposition slowly, even in an incubator. Roos was able to purge patients with live cultures of colon bacilli, while the dead germs had no effect.

The salines and mild laxatives doubtless do less harm, but the difference is only one of degree. The stronger purgatives, except perhaps calomel, are now but little used, the milder laxatives have taken their place; this is a great improvement, but even these should be given for definite indications only. I want to repeat the protest made three years ago against routine use of purgatives, and with careful inquiry into the etiology and the correct diagnosis of disease, they will be less frequently prescribed. Remove the cause by diet, habits or surgery and the laxative is superfluous.

It is, however, against the routine purge in all surgical cases, I wish especially to protest. If there is a hospital anywhere (except my own) in which the preliminary purge is not given to all patients operated upon, I have not heard of it. Such a universal practice is absurd. Surely every patient requiring operation is not suffering from trouble with the digestive tract; on the contrary, a vast majority have no trouble at all; why then make them sick and weaken them by a purge? We know that in the normal individual the process of digestion and evacuation is remarkably constant. It takes about seven hours for the stomach to empty itself, in five hours more the small intestine has extracted what nourishment it can and the remainder is pushed through the ileocecal valve. In the small gut the contents are always fluid and its movements are almost as regular and rhythmical as those of the heart. The time of the movement of food thus far (to the cecum) varies but little, unless there is a gross obstructive lesion.

The colon is more sluggish; extracting energetically the fluid, it pushes the mass along until it reaches the sigmoid, where it remains until defecation begins; this generally requires twelve hours. If, therefore, the patient has a normal alimentary canal, in twenty-four hours you can have an empty channel merely by giving a light digestible diet, without a purgation. Functional diseases need not concern us here as they rarely, if ever, interfere with the normal propulsive action of the stomach or small

intestines. In this part of the *prima via*, organic obstructive lesions only interfere with the normal course of the intestinal strain.

A condition of atony has been described, but some of the best authorities (Conheim) have never encountered atony of the stomach or small gut. There is no loading or clogging and solid or fluid matter is rarely found in them, when the patient has fasted twelve hours before the operation. It is in the colon, therefore, that we find the trouble, for careless habits, diet containing too little refuse to pass off, has in a measure injured the viscus. Metchnikopf says that the colon is a superfluous organ as we now live, and attributes "old age" to autoinfection from the gut, and thinks if the species were rid of it, life would normally be twice as long as it is now. There is no doubt that the consumption of vegetables and coarse foods is of advantage. Von Noorden has shown the great value of coarse diet in membranous colitis.

The colon is the portion of the canal which gives the most trouble to the physician, and also to the surgeon in preparation of his patients for operations in general. It normally constantly contains some fecal matter, but not enough to interfere with any operation, except on the large gut itself. In persons of constipated habit, I mean the milder forms, there rarely is enough fecal retention to interfere with operations on pelvic or abdominal organs, besides the colon. Large fecal impactions are very rare and when found are in the sigmoid and transverse colon, more rarely in the ascending colon. Any accumulation large enough to interfere with any surgical operation, except on the colon itself, could not be removed by a single purge; in fact, it only increases the amount of fluid and removes but little, if any, of the impaction. Anyone who has had a large fecal accumulation to remove, knows how slow, tedious and difficult it is to do it. I once observed a hard fecal mass in the ascending colon of a woman, which resisted all efforts at removal by purgatives and enemas for six months, until I thought it must be a growth of some kind. An operation became necessary for a pus tube and at that time I examined the colon, found a fecal mass and expressed it. If, therefore, the colon contains only a normal amount of feces, the diet and fasting with an enema or two will put the gut in good condition. If the accumulation is larger and of long duration and if time will permit, the colon should be unloaded by enemas of a solution of bicarbonate of soda, oil and large enemata of water, with a coarse diet. It is best if possible to do all this and have here an

interval of several days afterward, before the operation is undertaken.

The colon is the seat of real germ activity and the removal of masses would temporarily stimulate their increase. Besides, these accumulations indicate more or less colitis and there is greater danger from infections of this kind. If the accumulation is caused by an organic obstruction it is apparent that purgatives alone cannot remove it. It may be argued that the very fact that purgatives are so universally employed is *prima facie* evidence of their value and harmlessness. This does not necessarily follow; the profession has fallen into many fads, blood-letting, for example, which did much harm, and had to be banished by outside criticism.

Purgatives do affect the patient unfavorably, they weaken him and in the debilitated it might be enough to turn the scale. This is doubtless rare but does occur. One thing is certain, they make the patient more uncomfortable, and at a time when he has plenty to annoy him, we might at least spare him this. They surely do increase the formation of gas. The first change I noted after giving up the purge was that patients had less tympany and were thus spared much pain and discomfort.

After the operation, if patients can early take solid food and be out of bed, they will rarely need anything for the bowels, as they will act in a short time. If, however, by reason of nausea or other cause, but little food is taken and the patient has to remain in bed ten days or more, unless the bowels are aided, feces will accumulate in the sigmoid and rectum, and as their fluid contents are rapidly absorbed we may have a hard mass to contend with, which though not serious, may have to be broken up with the finger and removed, causing much discomfort and perhaps pain. With a few enemas this can be avoided and a laxative will rarely be required.

After intestinal resection I have waited from nine to twelve days, then observed a natural evacuation without a cathartic, and with no discomfort or trouble to the patient. I have followed the line of practice marked out in this paper for five years and my results have been better and my patients more comfortable than before.

CONCLUSIONS.

Purgatives can do harm and should be given only when indications are clear. The profession should abandon the slipshod,

routine methods now in vogue and should teach the laity, both by precept and example, the evils of the purgative habit.

The practice of purging all patients before surgical operations is unnecessary and injurious; they are made more uncomfortable, are weakened and the condition of the intestinal canal is not rendered more favorable but, on the contrary, germ activity is stimulated just as it is in enteritis, increasing the probability of infection when the gut is opened, and there is in addition to this more postoperative tympany.

A diet of digestible food for twenty-four hours or more and a fast of eight or twelve hours before, puts the intestine in the best possible condition for any operation, especially on the intestinal canal, except where obstructive lesions exist, and for these purgatives are worse than useless, and other measures are required.

In a few cases of milder fecal stasis a purgative several days before operation, followed by enemas are of service; these are, however, extremely rare.

The routine use of any powerful drug is to be deplored, and the habitual pre-operative purge is indefensible.

DISCUSSION.

DR. ALBERT GOLDSPOHN, Chicago.—When a man criticises adversely a practice that is so nearly universal, then certainly the burden of proof is upon him; and now is he bringing forth that proof? The author asks: would any surgeon rather operate on patients with diarrhea or with constipation? There I think he does not recognize that he is making an assumption which is incorrect—namely, when we purge the normal intestine by means of drugs we do not create an abnormal process in that intestine, as in the introduction of noxious material, or material that is a germ food, which causes multiplication of the flora in the upper segment of the intestine. By giving purgative medicines we increase the amount of normal function which is a different thing from a diarrhea, which is nature's reaction against microbic invasion and other irritations. I deny that a purging produced by a drug introduced into the normal bowel is the same thing as an enteritis. Again, the small intestine is not free from germs. It has its flora, the upper portion near the stomach almost none, but the nearer we get to the cecum the more numerous become the inhabitants, and the more virulent they become as well.

We would like to exclude the general abdominal cavity while working and make the field of operation in the pelvis a separate area. We want to operate in one segment and not expose the rest of the general peritoneal cavity; we can do that best if the

intestine is not distended. If this collapses, it recedes out of the way and can be easily held there by proper pads. I do not want to see the small intestine while doing an ordinary laparotomy and I succeed better if the intestine is not distended. If it is distended it becomes subject to friction or traumatism and to exposure to air. It is our business to keep all healthy peritoneal surfaces as far as possible from contact with dry air, even if it be sterile, on account of its desiccating effect which injures the serous coat.

DR. H. W. LONGYEAR, Detroit.—I agree most heartily with the first part of the paper. In my surgical work on the bowel, colon, and kidney, I have come against the too free use of purgatives a great deal. The systematic use of purgatives in cases of ptosis of the colon only increases the congestion, increases the symptoms and causes a spastic contraction of the bowel, so that my rule is to give *lubricants* and not cathartics. I use petrolatum oil in such cases to facilitate the action of the bowel.

In regard to the giving of cathartics before operation, it seems to me that is largely a mechanical question. We want to get the bowel as empty as possible. If we do an operation about the rectum or a perineorrhaphy, I should feel that it would be very dangerous to have a mass in the bowel come down after the operation. As to operating in the presence of diarrhea, that should be out of the question. We should not give a cathartic, so that there would be diarrhea while operating. We should get the bowel empty before the time of operation. I direct the use of a laxative early the day before operation and have the nurse wash out the bowel with a low enema the morning of the operation. In that way the bowel is rendered entirely quiescent.

DR. J. HENRY CARSTENS, Detroit.—This paper is a good one. There are excellent points in it, but really it depends upon the way we look at it and on the nature of the cases. An inflammation which produces a diarrhea is an entirely different thing from a diarrhea that is produced by a cathartic. A cathartic simply causes hypersecretion from the mucous glands so as to lubricate the parts and wash away the septic material. Dr. Walker says if you give cathartics you will find in the discharges a great many more microorganisms than without them, showing that the cathartics help to eliminate and wash away septic material that might become absorbed. The hard fecal matter in the rectum does not contain microorganisms, because these germs are up higher in the bowel; it is in the small intestines where they reside and cannot get down farther on account of the hard fecal matter that collects in the lower bowel.

The great American disease is constipation. People bolt their food, digestion is improperly carried on and, as a consequence, they resort to the free use of patent medicines and cathartics. They take these things and say they are good and

by taking them they eliminate and get rid of effete material, thus preventing absorption of this septic material. This does not mean that when you have an acute case to deal with, as for instance extrauterine pregnancy, you should wait and give the patient a cathartic, wash out the bowels and wait for twelve hours until the patient is dead. Not at all. You operate at once. The same way, when you operate on the vagina or perineum, you want the bowel well washed and cleaned out, so that you do not need to be bothered in the next three or four days with any movement of the bowels. I think a great deal of Dr. Walker's dictum, but still we must exercise judgment in the selection of our cases. All things considered, we want the bowels pretty well emptied before we operate.

DR. ALEXANDER HUGH FERGUSON, Chicago.—On the whole I think we are using purgatives too much and enemas too little in preparing our patients for operation. I frequently say this, that if the surgeon would undergo the same punishment by taking as big a purgative as he gave the patient, he would not be in very good condition to operate on the case, to say nothing of enduring the operation. I think that some of our patients are made less resistant to an operation by overpurgation. At the same time sufficient purgation must be obtained to clear out the lower portion of the small bowel and enemas given to thoroughly clear out the large bowel. This, however, is not always practicable.

I recall two cases of death from gas-bacillus poisoning. The gas bacillus is taken into the alimentary canal with green vegetables. Both of these patients were operated on without the alimentary canal being cleared out. They were cases in which I was called in consultation, and since that time I have made it a rule to find out if patients have been eating raw green vegetables, and if so, 2 ounces of castor oil is always administered.

DR. CHARLES L. WRIGHT, Huntington (by invitation).—There is one portion of Dr. Walker's paper that interested me more than anything else, and that was the part with reference to giving cathartics before operation. It brings up the question as to what causes constipation. We know that the movement of the bowels is controlled by the sympathetic nervous system; that a disturbed patient gets constipation whether it is from an inflamed appendix, or the ovary, or from gall-bladder trouble, or whatever may disturb the sympathetic nervous system. We disturb Auerbach's and Meissner's plexuses which control peristalsis and which are disturbed along the muscular coats of the intestines. We know that when we perform an operation that immediately following it the patient is going to have constipation. Why? Because we have disturbed Auerbach's plexus and the bowel may be quiet for several days or a week from the shock done to these plexuses. I think Metchnikoff is right when he says that the material retained in the intestine for a week is perhaps laden with germs and so far as we know toxemia may develop

from it, hence in order to prevent that we should stimulate Auerbach's plexus beforehand and anticipate the constipation that is going to follow by cleaning out the bowel, so if constipation should follow, we are prepared for it.

DR. WALKER (closing the discussion).—One of the principal objects of my paper was to stir up thought on this subject. Almost everything that has been said here in the discussion has been due, in my opinion, to a misconception of the subject. The medical man has learned that he cannot cure his patients by purgatives. He can help things, but he does not rely on them as formerly to effect a cure. The surgeon must know that he cannot thoroughly empty the intestines by administering purgatives. I would urge Dr. Goldspohn, when he goes home, to prepare the next patient a few days beforehand by giving him a light diet, and when this is done the intestines will be empty. In five years, in one instance I have found fecal matter in the small intestine, but I have not purged any of my patients except in one or two instances, and by purging them there was trouble afterward from tympany.

DR. GOLDSPOHN.—Was there any gas?

DR. WALKER.—I did not find as much gas as after the use of a purgative. The purgative stimulates the secretion in the intestines, where resides a colon bacillus, which is a gas-producing germ, and it is found in appendicial abscess. I had one case in which there was so much tympany that I hardly believed it was an abscess. It was a case in which the colon bacillus had been generating gas. Purgatives can produce enteritis because every one of them is an irritant. I wish all of you would go over the history of the action of purgatives.

Dr. Carstens spoke of the manner in which purgatives act, but he cannot find in literature a satisfactory explanation of their action. After a fairly thorough study of the subject I could not determine their action, as authors differ so widely. Some people do not think salines act by osmosis; that they act as irritants. Purgatives do not empty the intestines. When you have an organic lesion or some definite obstruction you cannot remove fecal matter by purgatives to save your soul.

You can accomplish what you desire in cases with no organic lesion by dieting a patient for twenty-four hours or more before operation. I did not say that there were no germs in the small intestine, but they are less numerous than in the colon. The contents of the small intestines pass through in five hours and the stomach empties itself in seven hours, hence there are twelve hours to clear out the bowels, and at the end of that time, with the fasting, the intestines are much freer from gas. Practitioners do not use cathartics as often in their medical cases; the same could obtain in surgical cases. You irritate the intestine by giving the patient a cathartic the same as you would by giving tartar emetic or arsenic. What do you do then? You lower

her vitality. You give the germs more fluid and they produce gas. What is the action of a purgative? Liquefaction of the feces, increased production of gases and increased peristalsis. Now what is the difference between that and enteritis? I hope, gentlemen, you will forsake your routine purge and try the plan I have outlined to you. It is needless to purge patients when there is nothing the matter with them.

PHLEGMASIA ALBA DOLENS IN CONNECTION WITH OVARIAN TUMOR.

BY

WILLIAM A. B. SELLMAN, M. D.,

Baltimore.

(With three illustrations.)

I WAS called to see Mrs. H., March 14, 1909, by Dr. John H. Rehberger of this city. He informed me that his patient was thirty-two years of age; had been married twice and never pregnant. Menstruation had been regular and not attended by any special derangement. She complained of intense pain in her left leg from the hips down; she had no suspicion of the existence of a tumor. The left limb had been swollen for some months and the pain was increasing. She was unable to sleep at night and was made generally miserable by the condition existing. I made a thorough examination and found the abdomen very much distended especially upon the left side and I immediately made a diagnosis of ovarian tumor. There was fluctuation in the growth. I advised immediate operation and she entered the Biedler and Sellman Sanatorium March 20, 1909.

March 23, 1909, the patient was placed under ether anesthesia and the tumor removed. The incision was made in the median line and the tumor was easily exposed. It was found to be multilocular and the larger cavities were emptied by use of trocar. About thirty-two pounds of fluid was contained in the tumor. The sac weighed twelve pounds and the left ovary was removed with it: the pedicle was ligated, then cut and the stump stitched into the broad ligament. The abdominal wound was completely closed by means of catgut sutures. The patient convalesced uneventfully and was allowed out of bed at the termination of two weeks and went home at the end of three weeks. At time of leaving the sanatorium the limb was reduced almost to the normal size and her attending physician tells me that the swelling subsided completely by the end of two months after the operation was performed and that she is at present enjoying perfect health.

I present photographs showing the size of the tumor including views from the side and in front: the amount of abdominal distention is clearly shown. The third photograph shows the size of the swollen limb. It presented the characteristic appearance (white glazed) of a case of phlegmasia dolens and the skin was distended almost to bursting. I could not trace the femoral vein from the groin as it courses down the thigh; it did not impart that sensation of hardness and it did not roll under the

FIG. 1.—Side view of tumor.

finger like a cord as described by some authorities. On this account I decided that there did not exist infection nor inflammation of the venous trunks. The pain was increased by extension of the limb. There were some varicosities in the veins from the groin down to the ankle.

Dr. J. Whitridge Williams tells us in the last edition of his text-book upon Obstetrics (page 865) "Phlegmasia alba dolens as a rule results from the extension of a thrombolic process from the pelvic veins; and in several cases could be traced from the uterus to the common iliac vein, whence it extended upward to the vena cava and downward to the vessels of the foot. Occasionally in cases which recover, the phlegmasia appears to be

an isolated process, though it is probably only a part of a much more extensive thrombosis. Moreover it should be borne in mind that even widespread thrombosis may give rise to but slight clinical manifestations, as in one case where the femoral vein and all of its branches were occluded completely, though careful mensuration was necessary to detect any difference in the size of the legs. Another case showed complete occlusion of the common iliac, and the femoral veins, which was clearly the result of pressure."

FIG. 2.—Front view of tumor.

Our patient did not present the symptoms of one suffering from "phlegmasia alba dolens puerperæ." She failed to have the elevated temperature which I have found present in cases of this character; but there existed the interference with locomotion due to the weight and size of the limb. She did not have the gastric disturbances, anorexia, bad taste, coated tongue nor eructations but she was constipated. The urine was highly colored but no albumin nor tube-casts were present.

In conclusion, I will state that I considered the phlegmasia dolens was due in this case to pressure upon the iliac vessels on the left side and that this pressure was immediately relieved

by removal of tumor. The patient was fortunate in the rapid restoration of the circulation and in not having had a clot form, which might have destroyed her life by the entire clot or a portion passing to the heart.

FIG. 3.—Showing swollen limb.

DISCUSSION.

DR. WALTER B. DORSETT, St. Louis.—I cannot answer the question of Dr. Sellman directly, but I wish to say that I have been unfortunate in a number of cases, after the most careful procedure so far as asepsis is concerned, in having these disagreeable symptoms of phlegmasia alba dolens arise, occurring generally in the left leg. I have had some four or five cases in which this condition has arisen in connection with fibroid tumors of the uterus, and it does not seem to make any difference whether the tumors have been large or small so far as my experience goes. Naturally, we would suppose that the large-sized tumor will produce more pressure symptoms than a small one. In these cases the condition came on postpuerperal. Fortunately, the women have all recovered having had no trouble whatever afterward. The usual treatment of elevation of the limb in the Hodgen splint and tonic treatment consisting of iron, quinine, and strychnia was pursued. It is interesting to know that these cases will occur now and then postoperative, even when

the most careful procedures have been conscientiously followed out.

So far as swelling is concerned in fibroids, I have seen it occur from any tumor, whether it was a fibroid or whether it was an ovarian tumor, it being simply the pressure that produces the symptoms. Happily, these cases are always relieved without any trouble. I do not know of an instance of clots forming and general septic phlegmasia alba dolens resulting. I do not think Dr. Sellman's case, pure and simple, is one of phlegmasia alba dolens and if the patient's condition had not been as good as it was, if she had been anemic, the possibilities are that she might have had sepsis following this condition. I am speaking now particularly of phlegmasia alba dolens.

DR. ALBERT GOLDSPOHN, Chicago.—I have had two patients recently, sisters, in whom I did the usual routine of curetment, repaired the cervix and perineum, then did abdominal section, resected the ovaries, removed the appendix, suspending the uterus by transplantation of the round ligaments into the abdominal wall by means of stab wounds about an inch to the side of the lower end of the median incision. These patients after an apparently smooth recovery, one in about twelve days and the other in fourteen days later, began to have a swelling in one limb, from phlebitis. In one patient, in whom the phlebitis began to develop in one limb fourteen days after operation, it also began to a lesser degree in the other limb. Such experiences as that I have had several times in years gone by, but the disturbance has not been of a serious nature in any case, not serious so far as local manifestations are concerned, nor so prolonged in time required for complete recovery, as is the average case of phlegmasia alba dolens, following the puerperal state.

The question in my mind has been, how does this arise? There were large veins, of course, distributed in the broad ligaments in both of these cases, but there was certainly nothing in the nature of a septic condition, or it would have shown itself before two weeks. It occurred to me that the nearest point for the origin of the trouble was in connection with the stab in the abdominal wall on both sides of the incision, which were made very near where the deep epigastric vessels lie. I thought I had injured a vein or artery there. It may be shown later that the end of the round ligament stump being sewed into the muscle and fascia, necrosis takes place in the subcutaneous tissue area; and if much of the stump is left projecting it leads later to a purulent condition. But there is probably some necrosis of tissue outside of the fixation suture and this quasi septic state might lead to an infection in the deep epigastric vein, which we know goes right to the femoral vein and would be in the right place to set up such a process.

DR. THOMAS B. NOBLE, Indianapolis.—There are certain individuals who present angiomatous pathology which is not

seen in other individuals, and out of this we have purpura hemorrhagica, angioneurotic edema, and other analogues, so that it is more than reasonable, it seems to me, to believe that there is a dyscrasia, a disposition toward a venous pathology by nature in some persons. Everyone who has to deal with any sort of abdominal surgery runs across unexplained pathology of the veins. We have all had such experiences as have been related, where without cause, patients, seemingly otherwise perfectly well and strong, have developed this condition following suspension of the uterus, or an appendectomy or some so-called minor abdominal operation, although the operations may have been done in a thoroughly aseptic manner.

As illustrating this dyscrasia idea, I wish to say that I recently saw a young attorney who had lived a model life, a hygienic life, who had been perfectly healthy and well until this time, but who was stricken with phlebitis during the course of a trial in court. The phlebitis was confined to the right leg. In the course of time he recovered. Within two weeks thereafter the condition appeared in the left leg, extended to the thigh, the edema went as high as the armpit and it seemed as if again this condition would be established in the entire left leg. This was followed by thrombosis and embolism and the sequential pathologic condition from such an embolism in the lung. After a long period of illness this man recovered, but a year afterward he had a peculiar and obscure abdominal condition, attended by pain, which was followed by vomiting of a large quantity of blood and from which he died. The autopsy showed that there were infarctous changes in several feet of intestines from the duodenum down, which was perfectly black and a terrific reflux of blood coming into the infarctous area was followed by a pronounced hemorrhagic exudate in the lumen of the intestines, which was carried up into the stomach, and vomited as red coagulable blood. This man had clear lungs, he never was syphilitic, and there was nothing in his life or history which would account for this tendency on his part to develop this venous change. Hence, I cannot help but feel that in some individuals exists an unknown quantity, an unknown intangible something, which predisposes them to venous pathological change and that we cannot anticipate it; that it may occur and that even dire results may follow minor operations in cases which otherwise ought to present a very favorable prognosis.

DR. H. W. LONGYEAR, Detroit.—The remarks of the last speaker are very pertinent regarding phlebitis and phlegmasia alba dolens. I do not think we need to look for any local irritation in the region of the veins infected. We may operate on one side of the body and there will be healing of the wound without any trouble whatever, and yet phlebitis may occur on the other side without any apparent cause. I have witnessed in my practice such occurrences in two or three instances. I recall one case in which fixation of the right kidney was the only

operation that was performed. The wound healed immediately and there was no trouble from it thereafter. However, the patient in two weeks had pain in the lower left quadrant of the abdomen and in a day or two that side was sore and tender to the touch. She developed a very mild phlebitis which did not pass down as far as the popliteal space. This subsided and she was entirely well, and about to get up, when the other side became similarly affected. I have seen it occur from other operations where there has not been suppurative action of any kind, so that it seems to me, as Dr. Noble has said, there might be some dyscrasia to account for it, rather than any specific infection from the operation itself. Regarding the case reported by Dr. Sellman, I think the trouble must have been due to pressure rather than to inflammatory action.

DR. E. GUSTAV ZINKE, Cincinnati.—I hope the author of the paper will pardon me if I express the opinion that the diagnosis in his case is doubtful. The case as reported is one of swelling of the left leg associated with a large multilocular ovarian cyst. The removal of the cyst resulted in an immediate disappearance of the swelling in the leg. If I understand the definition of phlegmasia alba dolens, it means an inflammatory condition of septic origin. There was no elevation of temperature at any time either prior to or after the operation in this case, and the recovery from the operation was undisturbed. Would you then call this a case of phlegmasia alba dolens? It looks to me as though it was simply obstruction to the circulation which caused the swelling of the leg and, with the removal of the tumor, the bloodvessels were relieved and the swelling disappeared. Of course, the author of the paper may be able to throw additional light upon the subject and justify his diagnosis. Had this swelling of the leg occurred after the operation, with elevation of temperature, and the like, I should have no doubt in my mind whatever. I have risen to obtain additional information to satisfy my own mind that this case really is what the author claims it to be.

DR. JOHN W. KEEFE, Providence.—Postoperative phlebitis is absolutely a distinct condition from that described by Dr. Sellman. As to the cause of postoperative phlebitis, we are as much in the dark to-day as we were twenty years ago. There has been a great deal of time, thought, and study, as well as theorizing, given to this condition, and yet it appears to me that nothing has been definitely determined as to the exact cause of postoperative phlebitis.

I recall a case of inguinal hernia in a woman, where the operation was perfectly simple. The wound healed by primary union, yet in ten days she developed phlebitis in the left leg. About twelve days afterward she developed phlebitis in the right leg. There were no signs of sepsis. In time she gradually convalesced from the phlebitis, as did Dr. Sellman's patient. It occurred

to me that Dr. Sellman's case is not one of true phlegmasia alba dolens, but the edema was due to pressure from the tumor.

DR. SELLMAN (closing the discussion).—The remarks of the last two gentlemen have accomplished the object of my paper. I felt some doubt myself about the accuracy of the diagnosis of phlegmasia alba dolens. I found in my text-books a description which exactly fitted my diagnosis and I want to say here that I looked up the subject very thoroughly. My experience has been that most cases of phlegmasia alba dolens I have encountered have been postoperative, or postpuerperal, due to difficult and almost always mechanical deliveries. The very reason I presented the paper was to find out what the condition really was. The case did not present all the clinical features of phlegmasia alba dolens. I thought of saying phlegmasia dolens, leaving out the word alba. I did not know exactly what to name it, but I had to deal with a condition which was unusual in my experience, hence I thought to report the case in order to obtain the experience of others who are working in these lines, and to learn whether they have had patients with swollen limbs, due to what I call pressure symptoms, brought about by ovarian tumors especially. All of us have seen the circulation interfered with in the lower extremities by the presence of tumors of one kind and another. This is my first experience in which an ovarian tumor has brought about this condition.

In regard to phlegmasia alba dolens arising after operative work, that is more or less common. We have all had more or less experience with phlebitis, embolism, and thrombophlebitis. We see cases that are apparently doing well without any postoperative complications suddenly develop bad symptoms and die. We tell the members of the family that the patient is doing well, with every evidence of recovery, and yet suddenly death may occur, due to the formation of emboli or phlebitis, conditions which are beyond our efforts either to foresee or to control.

I heartily endorse the remarks of the last speaker, in that I feel doubtful myself whether this should be called phlegmasia alba dolens. Certainly the swollen condition of the left leg was due to pressure symptoms. The appearance of the conditions present in the limb were all the same as those which we find to-day in phlegmasia alba dolens.

TERMINAL EVENTS IN GALLSTONE DISEASE.

BY
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THIS consideration of the terminal events in gallstone disease is presented with the hope that it may provoke a discussion so vigorous in its nature, that renewed and new interest may be awakened in the subject of cholelithiasis, and, through a more keen appreciation of the disabling and even fatal disasters attending its terminal events, that physicians and surgeons alike may be prompted to advise and to institute operative procedures for early relief in practically every case of gallstones.

That gallstone disease is extremely prevalent, afflicting from 7 to 10 per cent. of adults dying in the public hospitals of England,(1–2) Germany(3–4) and America,(5) is a contention apparently substantiated by the records of thousands of postmortem examinations. While we may accept as accurate these findings as to the relative frequency of gallstones, in that they are a record of facts, certain inferences drawn therefrom are unwarranted. A number of writers, in commenting upon these examinations, seemingly assuming the right to speak with authority for the voiceless dead, dogmatically assert the claim, defenseless and groundless though it must be, that in the great majority of instances these gallstones produced at no time in their history either symptoms or damaging results. This conclusion is based upon a misinterpretation of the early and the mild symptoms of cholelithiasis, which, present knowledge leads us to believe, were present at some time in the life history of the individuals so afflicted.

The symptomatology of gallstone disease as given in our textbooks, with almost no exception, is but a recitation of terminal events and of the symptoms produced by them. The late and terminal complications, rather than the early and initial manifestations of the disease, have received consideration, and because of this, a symptomatology has been evolved which, being but the symptomatology of terminal events, fails in its purpose in so far as the diagnosis of gallstones at an early period in their history is concerned. The so-called latent gallstones,

which may have escaped the serious complications of terminal events, have been passed over unrecognized because not accompanied by this stormy symptom complex.

Because of the erroneous statement, based upon conclusions drawn without warrant from the above mentioned postmortem examinations, and so frequently repeated in the literature of cholelithiasis, to the effect that in the great majority of instances gallstones are unproductive of either symptoms or serious complications, the impression that, as a rule, gallstones are void of serious danger has obtained widespread credence. This, together with the fact that the diagnosis of gallstones seldom has been made prior to the onset of complications, has resulted in gallstone surgery becoming largely the surgery of terminal events.

Our distinguished Fellow, John B. Deaver,(6) in a paper read before the Southern Surgical and Gynecological Association in 1907, made a masterly argument against the performance of cholecystectomy in all those cases in which it is probable that the gall-bladder still retains, or can regain through a drainage operation, its functional powers. In two subsequent papers(7–8) he reports a total of 254 operations for gallstone disease and its complications. Of this number, 101 or 40 per cent., were cholecystectomies. The performance of this relatively enormous number of cholecystectomies by a surgeon strongly opposed to the operation save as one of absolute necessity, strikingly demonstrates the fact that a large proportion of the patients with gallstone disease are referred to the surgeon for relief, or seek such relief on their own initiative, only when confronted by the serious and destructive lesions of terminal events.

The formation of gallstones within the gall-bladder is the result of a low grade infection of the mucosa of that viscus. Virulent infections of the gall-bladder are practically never the cause of gallstone formation, but almost invariably are complications thereof. The combination of infection and a foreign body within the gall-bladder is sufficient to excite an acute cholecystitis, which may occur, but with less frequency, in the absence of the foreign body. This acute inflammation must be looked upon as a terminal phenomenon in gallstone history, occurring only after a more or less prolonged occupancy of the gall-bladder by the calculi, during which time their presence was fairly well announced by their initial symptoms.

With extension of the inflammation to the cystic duct, occlusion of that duct may occur and thereafter the gall-bladder forever will remain eliminated from the biliary circuit, void of function and a constant menace to the comfort and life of its possessor. Depending upon the activity of the infecting bacteria, either hydrops or empyema of the gall-bladder, occurring independently or sequentially, may follow occlusion of the cystic duct from inflammation or from blockage by stone. Either condition frequently necessitates the performance of cholecystectomy, and in the light of our present knowledge of the etiology and treatment of chronic pancreatitis, the performance of a cholecystectomy is a distinct disadvantage to the individual, remote, it is true, but still a disadvantage.

This occlusion of the cystic duct from inflammation excited by the irritation of gallstones, as well as the direct blockage of the duct by stone, so frequently rendered permanent by contraction of the inflamed duct about the offending concretion, must be looked upon as a terminal event in the progress of cholecystitis, itself a complicating and comparatively late event in gallstone disease. The still later sequential phenomena of hydrops, empyema, gangrene, ulceration, perforation and rupture of the gall-bladder, as well as sclerosis, contraction and obliteration, are terminal events of a higher degree.

In hydrops, occurring in the early catarrhal stage of an acute cholecystitis, or from the recurrent exacerbations of a chronic inflammation, the walls of the gall-bladder, greatly distended by the outpouring of mucus, generally become extremely tenuous. I have removed such a gall-bladder, measuring seven inches in length and one and one-half inches in diameter, in which the walls were as thin as tissue paper. Rupture of such a thin walled cystic gall-bladder is an ever existing danger.

The most serious complication, and one which threatens every case of hydrops, is a secondary empyema resulting from reinfection of the gall-bladder and its imprisoned contents. In October, 1908, I operated on a woman in whom hydrops had been present for over one year, the enormously distended gall-bladder being readily grasped through the relaxed abdominal walls. While feeling remarkably well, she was taken with a severe chill, followed by a high temperature, sweating, and a drop in temperature to 97°. I saw her within a few hours, transported her thirty miles, and performed a cholecystectomy immediately after her arrival at the hospital. The gall-bladder,

which had not ruptured, could be likened in appearance only to the viciously inflamed and distended bowel of complete intestinal obstruction. It was enormously distended with a thin, turbid, mucopurulent fluid. The cystic duct was completely occluded, the result of inflammatory action. One gallstone occupied a pocket in the sigmoid twist of the duct. Recovery followed the operation. This was one of those "innocent" or "latent" gallstones which we are told, so repeatedly, should be treated, in the poor, by the administration of sodium phosphate; in the rich, by a trip to Carlsbad. When a secondary empyema thus occurs, rupture, with infection of the general peritoneal cavity is a practically certain termination, unless anticipated by surgical relief. Such terminal events in gallstone disease are by no means rare.

In empyema resulting from an acute cholecystitis with an infection of a high degree of virulence, the gall-bladder is enlarged and its walls are edematous, swollen and thickened. Suppuration, ulceration, and possibly gangrene and perforation, are synchronously occurring phenomena. Gangrene may be limited to a small area or involve the entire gall-bladder. Perforation into the intestine may take place, affording relief of tension and efficient drainage, followed by contraction, practically amounting in some instances to an obliteration of the gall-bladder.

Rupture of the suppurating gall-bladder into the general peritoneal cavity is by no means an unusual terminal event, having occurred five times in my own experience. Of these five cases, four made a complete recovery after operation, while the remaining one, a desperate and delayed case, with a widespread peritonitis, died on the table as the abdominal incision was completed.

From observation of these and other cases, and from a study of the literature of the subject, I am convinced that the frequency with which rupture of the gall-bladder occurs as a terminal event in gallstone disease is scarcely appreciated. In my opinion these cases are commonly diagnosed as peritoneal infection from appendicitis, operated on as such and so recorded unless gallstones, correcting the diagnosis, are found in the peritoneal cavity. All of us, knowing the vagaries of the appendix and its possibilities as a mischief maker, readily can excuse the error.

One of my patients, a few months before coming to me, had been operated on for a supposed appendicitis and the appendix removed.

When a gauze drain was being removed, some days following the operation, a gallstone escaped from the cavity and others were expelled at subsequent intervals. Pus was discharging from the incision when she consulted me, and several gallstones were removed from the sinus by the scoop. The gall-bladder, containing one immense stone and a number of small ones, was removed and recovery followed.

Two others were brought for operation with a diagnosis of appendicitis, because of pain, tenderness and swelling in the right half of the abdomen. Correction of the diagnosis prior to operation was not difficult. Free incision, removal of gallstones, cleansing of the cavity, abundant drainage, with the patient in the Fowler position, were followed by slow but eventual recovery.

The following case presents many of the disastrous terminal events of latent gallstones—suppuration, rupture, peritonitis, chronic pancreatitis and duodenal obstruction—all of which could have been avoided by an early operation, which had been advised.

Miss D., aged fifty-four, a patient of Drs. Rohn and Reynolds, of Defiance, Ohio, was operated on, November 4, 1908, for rupture of the gall-bladder occurring about sixty hours previously. For twenty-seven years this patient had been the subject of gallstone disease, in its "innocent" or "latent" form, as indicated by the stomach symptoms so invariably present and so frequently mistaken for indigestion, gastralgia or gastroduodenitis. During this twenty-seven years she had never missed a day from her duties as teacher in the public schools, so slight had been the disturbances created by the gallstones. That chronic pancreatitis had been present for a considerable period was then shown by disturbances in digestion and in carbohydrate metabolism, by loss in weight and repeated hemorrhages into the skin, by local signs and a positive Cammidge reaction in the urine. Suppuration in the gall-bladder had been indicated by the usual symptoms through a period of four days. Rupture was announced by sudden, severe pain, exquisite tenderness and a degree of collapse closely approaching death. I operated in that deceptive period of repose when all warning symptoms were in abeyance.

The walls of the enlarged gall-bladder were thickened and edematous. The rupture was in the fundus. Pus and bile escaped from the gall-bladder and quantities of seropurulent fluid and bile from the peritoneal cavity. A second incision

was made low in the abdominal wall into the pelvic cavity and fluid of the same character obtained. The cystic duct contained four gallstones but was not permanently blocked thereby, as was shown by the presence of bile in the gall-bladder and the peritoneal cavity. Gallstones were found in the peritoneal cavity and the gall-bladder. The head of the pancreas was indurated, lobulated and decidedly enlarged, unquestionably from chronic pancreatitis.

Because of the existence of chronic pancreatitis, necessitating biliary drainage for its cure, and because the cystic duct was not occluded, making possible the restoration of function in the gall-bladder, the latter was not removed but simply drained. A large split rubber drain was placed alongside the gall-bladder, another in the right kidney pouch, and a third in the pelvis. The patient was placed in Fowler's position and normal saline solution administered by continuous flow through the rectum. Drainage of the gall-bladder continued for fourteen weeks. The recovery was slow but, in the main, satisfactory.

This patient consulted me again in July of the present year. All symptoms referable to the biliary tract and the pancreas had disappeared. There were present, however, positive symptoms of nearly complete obstruction at the pylorus or in the duodenum. Vomiting of stomach contents immediately after every meal was a regular event. The patient had lost 50 pounds in weight since the day on which rupture of the gall-bladder had occurred. Gastrojejunostomy was performed July 19. The adhesions resulting from the peritonitis, secondary to the rupture of the suppurating gall-bladder, had so displaced and angulated the duodenum that a practically complete obstruction existed. No attempt was made to separate the adhesions and restore the duodenum to its natural condition and position.

The most valuable and interesting information obtained from this second abdominal exploration, relates to the condition of the pancreas. Within a period of eight months and following fourteen weeks of biliary drainage, the pancreas had been restored to a perfectly normal condition. The induration, lobulation and swelling had completely disappeared. Several attempts to obtain Cammidge's reaction in the urine were negative in result. The patient, seen September 8, is well in every particular. She retains all her food, digests it with comfort, and is gaining in weight.

A distinction must be made between rupture of the gall-

bladder, a sudden process in the course of an acute infection, and slow perforation, a gradual process in the course of a chronic cholecystitis. The one immediately threatens life; the other, only remotely. As a result of this ulceration terminating in slow perforation, gallstones are extruded from the gall-bladder and are found occupying little pockets, or nests, under preformed adhesions, such pockets in some instances communicating with the gall-bladder, in others being entirely shut off therefrom. Occasionally this slow perforation takes place into the substance of the liver, where the gallstones might be overlooked in the performance of a cholecystostomy, but readily discovered in the course of a cholecystectomy. Moynihan(9) believes this to be a not uncommon event, he having found four such cases in his first twenty cholecystectomies.

While these aberrant calculi undoubtedly may remain for months or years safely and quietly housed in these extracystic pockets, infection may occur and abscess result; or the calculi may by ulceration escape into the stomach, duodenum or colon. This latter termination accounts, in some instances, for large stones finding their way into the intestine where they may produce intestinal obstruction, an uncommon but not rare event. Sclerosis and contraction of the gall-bladder wall may follow repeated attacks of acute cholecystitis, of hydrops, of empyema, or the exacerbations of a long continued chronic inflammation. The gall-bladder becomes distorted in outline, assuming the shape of the gallstones over which its walls are tightly drawn. Two or more compartments, connected or separated, may be found, every one occupied by one or more gallstones. Not infrequently, the gall-bladder becomes nearly or quite obliterated.

When one sees a gall-bladder completely packed with calculi, the contracted walls hugging them tightly, with little pockets or nests under overlying adhesions, each nest occupied by a gallstone which has ulcerated its way through the walls of the gall-bladder, he appreciates the fact that he is viewing a terminal event, and that at some time in the past that patient has passed through a stormy period of cholecystitis—a period during which a diagnosis of gallstones should have been made.

Pericholecystitis is a not infrequent terminal complication of both acute and chronic cholecystitis. As the inflammation within the gall-bladder varies in intensity, so does that without. In the chronic form, the onset and progress of the disease may be so insidious that symptoms are practically absent until the

presence of crippling adhesions to the stomach, duodenum or colon, is made manifest by disturbances in function of the adherent viscera. The adhesions in pericholecystitis, from either an acute or a chronic infection of the gall-bladder, may cause so great a degree of discomfort, of actual pain, or of disability, that operation will be required for relief, irrespective of other lesions produced by the offending gallstones.

Traction of the adhesions upon the stomach or duodenum may produce an obstruction to the onward passage of food. In some instances these adhesions are so general and so complicated that the separation of them is attended by great difficulty and by slight promise of ultimate permanent relief. With no obstruction to the outflow of bile, from either adhesion or stone, gastrojejunostomy with no separation of adhesions has given satisfactory results in two of my own cases. In one of these, dense adhesions to the colon, which had produced a most troublesome obstipation, were divided with relief of the colonic obstruction. When, however, the adhesions are the cause of pain or disability from traction on the gall-bladder, or from angulation of the common duct interfering with the biliary flow, or when a stone is present in the common duct, the separation of such adhesions becomes a necessity. After the separation and replacement of the adherent viscera, the omentum, as suggested by Andrews,(10) should be upturned between the biliary tract, on the one hand, and the stomach, duodenum and colon, on the other.

The presence of a stone in the common duct must be looked upon as a terminal event in the history of that stone, which, originating in the gall-bladder, as is generally, if not invariably, the case, has later effected its passage, stormy though it may have been, through the convoluted cystic duct. The frequency with which gallstones invade the common duct is much greater than is shown by the statistics of the earlier investigators. Mayo(11) found common duct stone in 207, or 14 per cent. of 1,500 operations on the gall-bladder and ducts. Kehr,(12) in 720 gallstone operations, found common duct stone in 137, or 19 per cent. Deaver,(13) in 245 cases of gallstones, found stone in the common duct in 56, or 23 per cent. Mayo Robson(14) reports that in his recent experience calculi have been found in the common duct in 40 per cent. of the cases of gallstones operated on by him. This latter percentage of common duct stone is much higher than is shown by the general experience of

surgeons, and must result from either a more searching examination of the ducts by Robson than is customary with others, or from the fact that a more severe and complicated class of cases fall into his hands. Robson further found that, in over 80 per cent. of the cases of common duct lithiasis, more than one stone was present in the duct.

While a stone in the gall-bladder may, in many instances, produce only slight symptoms and inconsequential results, it enters the common duct pregnant with power for the production of terminal events of a serious and destructive nature. Having at its extremities, on the one hand, the liver—on the other, the pancreas; being the only excretory duct of the former, and merging in a common outlet with the duct of the latter; the common duct occupies a strategical position commanding the welfare and integrity of both organs, each of which is essential to life. The colic, announcing the passage of a stone along the common duct, which must be considered as a terminal event in gallstone disease, may vary in intensity from a scarcely appreciable and transitory pain, to one of extreme degree, resulting in utmost agony, in collapse and in death.

Blockage of the duct by stone, be it complete or incomplete, is fraught with dangers of the greatest severity, not to the duct alone, but to the liver as well. In the absence of infection, the block produces results only of a mechanical nature. The biliary channels proximal to the block, including the intrahepatic radicles, may become enormously distended, resulting in marked biliary engorgement and enlargement of the liver, in disturbance in its excretory function and in the reabsorption of its products.

Blockage of the duct is frequently the determining factor in the production of an infection which may involve the entire biliary tract from the minutest divisions of the intrahepatic radicles to the ampulla of Vater. As in the gall-bladder, the infections of the duct may present the greatest gradations in severity. Exacerbations of cholangic infection, each marked by its chill, its sudden high temperature with its rapid fall, and its sweating—recurring at irregular intervals as a rule, but occasionally with marked regularity—so closely simulate the paroxysms of malarial intoxication as to be mistaken therefor. In the highly infectious types, suppuration, ulceration and perforation, may go hand in hand. With involvement of the intrahepatic radicles, abscess of the liver, although infrequent, is

a serious complication often fatal in its results. Rogers(15) reports twenty such cases, in eighteen of which gallstones stood in a causal relation.

It is in common duct stone, with its resulting cholangitis, that jaundice is so generally a symptom. That jaundice has held, and still holds, an unwarranted importance as a symptom of gallstone disease, is a deplorable but indisputable fact. In arriving at a diagnosis of gallstones, valuable time is wasted, all too frequently, in waiting for the appearance of jaundice. With the general acceptance of the fact that jaundice, almost without exception, is a late symptom, marking the occurrence of a terminal event in gallstone disease, will disappear the greatest stumbling block in the way of early diagnosis. That cholangitis and cholecystitis may result from typhoid infection in the absence of stone, and that such infection may progress to perforation, is well established. Typhoid infection of a biliary tract already occupied by gallstones, must be looked upon as a secondary infection of most serious import.

Mayo Robson(16) first called attention to the occurrence of chronic pancreatitis as a complicating terminal event in gallstone disease. His subsequent writings and the experience of many surgeons have shown that pancreatitis is a disease of frequent occurrence and that in practically 80 per cent. of the cases, gallstones have borne an etiological relation thereto. The symptomatology of the disease is becoming well understood, and the diagnostic and confirmatory value of Cammidge's pancreatic reaction is supported by those who have embraced their opportunities for its frequent employment.

One decided advance arising from the present knowledge of chronic pancreatitis and its pathology, is the recognition of the fact that, in many instances of supposed cancer of the head of the pancreas, the swelling, induration and lobulation is the result, not of malignancy but of inflammation. The differential diagnosis of the two conditions is not difficult, and upon the decision must rest the prognosis and the question of operative treatment. Chronic pancreatitis will yield to biliary drainage, either temporary or permanent, while malignant disease must, of necessity, remain undisturbed in its progress to a fatal issue.

The relations of the common bile duct to the head of the pancreas and to the pancreatic duct, and of both of these ducts to the duodenum, as well as the course of the lymphatics from the

gall-bladder to the head of the pancreas, are of importance in the etiological relation of gallstones to pancreatic inflammations. The sequence of common duct stone, cholangitis, and pancreatitis by ascending infection through the pancreatic duct, is well established, while that of gall-bladder stone, cholecystitis, and pancreatitis by direct lymphatic invasion, as contended by Maugaret,(17) seems equally certain.

Chronic pancreatitis presents two distinct pathological and clinical pictures, the interacinar and the interlobular, depending upon the location of the fibrosis, which is the essential pathological process of the disease. In the interacinar type the fibrosis occurs within the lobules and surrounding the glandular acini, with early encroachment upon, and involvement of, the islands of Langerhans, resulting in diabetes. Fortunately, this form of pancreatitis seldom, if ever, follows directly from gallstone disease. It is in the interlobular type of chronic pancreatitis, with the fibrosis primarily external to the lobule and only secondarily slowly extending from the periphery into the lobule, with late involvement, if any, of the islands of Langerhans, that gallstone disease plays so important a part in etiology.

The operative results obtained by many surgeons prove that, in the majority of instances, chronic pancreatitis can be cured by the removal of the offending gallstones and the subsequent temporary or permanent drainage of the biliary tract. At what point in the course of a chronic pancreatitis, biliary drainage may fail as a curative agent, is not established. Neither can it be determined which particular case of gallstone disease will terminate in pancreatitis, nor at what stage of the former the latter will occur. The early surgical removal of gallstones, only, can forestall the occurrence of a pancreatitis, with a possible diabetes, as terminal events in gallstone disease.

Of the many terminal events of gallstone disease, malignancy is without question the most hopeless from the standpoint of cure. That primary malignant disease of the gall-bladder and ducts is preceded by gallstones in practically every instance, is the experience of surgeons and pathologists. Ochsner(18) states that in primary cancer of the gall-bladder he has always been able to get a history of gallstones dating back many years, and in operating and in conducting autopsies in such cases has invariably found gallstones present in the gall-bladder. Brodowski found gallstones in all of forty cases of primary cancer of the gall-bladder. Musser,(19) in 100 cases

of primary cancer of the gall-bladder, found gallstones in sixty-nine, while Jayle found them in twenty-three out of thirty cases of primary gall-bladder cancer. Siegert(20) holds that gallstones are present in 95 per cent. of all cases of primary cancer of the gall-bladder, and Beadle,(21) at the London Cancer Hospital, found gallstones present in all of the cases of primary cancer of both the gall-bladder and the liver. Mayo,(22) in 1,800 operations on the biliary tract, found primary cancer in 4 per cent., while Sherrill(23) places the percentage of cancer incidence at fourteen, which is practically the same figure reached by Schroeder.

In the face of all this accumulated experience, which harmonizes so closely, and from which it would seem that but one conclusion could be drawn as to the etiology of primary cancer of the gall-bladder and ducts, the majority of the cases of recognized gallstone disease are allowed to drift along, from one terminal event to another, with the most optimistic indifference on the part of the profession.

Other complications than those here mentioned—some common, others rare: some severe, others mild—are found as late conditions in gallstone disease and, while no particular one occurs with great frequency, when taken as a whole, the occurrence of serious and even fatal terminal events is extremely common. It would seem that a due appreciation of the frequent occurrence and the serious import of these complications must lead to the surgical removal of gallstones, as a conservative and prophylactic measure, long before the opportunity is given for the onset of these terminal events. That this may be done will require a more general recognition of the initial symptoms of gallstone disease, with diagnosis based thereon, rather than upon the symptoms produced by these same terminal events.

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DISCUSSION.

DR. MILES F. PORTER, Fort Wayne.—We have listened to many interesting papers, but to none of more practical importance than that which has been read just now by Dr. Smith.

I do not know of a better way to emphasize the very many points brought out in this paper than to say, that there is not one of the so-called terminal results that have been mentioned in the paper but that have occurred over and over again in my own personal experience. Twice I have met with obstruction of the bowel, and I do not know how many times carcinoma. The last case of that kind I had only last week after midnight in hospital and which was one of pericholecystitis with hepatic suppuration. And so I might go on mentioning the cases that have come under my care simply to emphasize what the author has said regarding the relative frequency, and the consequent importance of opening these cases before the more serious terminal results occur.

I was somewhat interested in what Dr. Smith said regarding the operation of posterior gastroenterostomy, in those cases in which the pylorus is obstructed because of adhesions about it; or, on the other hand, because of adhesions hard to break up which hang the pyloric orifice up under the liver. This has occurred a number of times and in some cases the separation of the adhesions is not only difficult and accompanied by considerable trauma to the liver, but attended with danger. But, as the author has said, in many cases after these adhesions have been liberated we still have a greater difficulty to overcome—namely, the prevention of their formation in as bad position as before. And I am, therefore, impressed with Dr. Smith's idea that many of these cases perhaps would be better treated by a posterior gastroenterostomy, in so far as the relief of this

feature is concerned. That would only be done in connection with the relief of the cholelithiasis which was the original cause of the trouble.

Regarding the removal of the gall-bladder or cholecystectomy, personally I very rarely do a cholecystectomy and yet within the last sixty days I have done four such operations, about two-thirds of the gall-bladder work I have done in that time. These happened to be cases that required cholecystectomy. It seems to be clearly established that the gall-bladder should be preserved as long as it is functionating and communicates with the liver. While gallstones are the most common cause of pancreatic inflammation, they are not the only cause, and we may need to establish liver drainage to cure the pancreatitis of other than gallstone origin, and then we want the gall-bladder. It seems clear that if the cystic duct is shut, there is cause for cholecystectomy. It is altogether a much more simple operation than is cholecystotomy, in my opinion. But when you remove the gall-bladder it takes away, as Dr. Smith has said, the drainage that may be necessary for the future good of the individual. One can't be quite sure how extensive a cholangitis he may have to deal with in connection with cases of cholelithiasis, and the removal of the gallstones does not cure a cholangitis. It only removes the original cause. The infection itself is still in progress and the removal or cure of that infection requires drainage of the liver; and, therefore, I say again that except in cases of gangrene or of closure of the cystic duct, or of complete or partial obliteration of the gall-bladder, it is better to leave the gall-bladder than to remove it.

There is another condition which has led me in a number of cases to defer gallstone operations in my own work, and that is the liver degeneration that occurs oftentimes in connection with gallstones, which is the same thing as the liver degeneration that follows chloroform administration sometimes. These are the patients who die presenting the clinical picture of inadequate kidneys. They are the same which years ago I referred to as cases of kidney involvement, producing death after a gallstone operation. Death is not due to the operation, but to the infection consequent upon the condition for which the operation was made—namely, gallstones. This degeneration can be prevented or cured, if it has not gone too far, by drainage of the gall-bladder. Whereas, if in such cases we did not know this condition was already manifesting itself, if we remove the gall-bladder we would interfere with the patient's chance of recovery, so that in cases of doubt as to whether the gall-bladder had better be removed or allowed to remain, I think it is better to allow it to remain. But if for any reason it may seem desirable to remove the gall-bladder, you can do it later. Another reason for leaving it I did not mention. I do not know of any surgeon who feels quite certain and can say positively that the pancreas or the common duct in a given case is not involved.

I have seen surgeons palpate the common duct carefully and pronounce it all right, only to find later that they were mistaken in their judgment. If you leave the gall-bladder in cases of this kind you are giving your patient the benefit of the doubt.

DR. THOMAS B. NOBLE, Indianapolis.—There is nothing in the whole field of abdominal work that offers such attractions as the sequential pathological processes of cholelithiasis. Its etiology and its many manifestations and pathological ramifications are exceedingly beautiful and attractive to follow out, as they have been done so well by the author of this most admirable paper. One cannot discuss all the phases of such a paper as this in a few minutes, so I will refer to but two points.

First, I refer to that condition in which, by pericholecystitis, we have changes occurring in the stomach due to the encroachment of the inflammatory exudate upon the pylorus. Under such conditions we will have to contend with gastric neuroses, as well as true anatomical disturbances following. The author has advised gastroenterostomy in such complications. For my part I would prefer the method which I follow—namely, that of Finney, and do here a Finney operation; and to me, of all operations in this region, there is nothing more beautiful or more satisfactory than a Finney operation. I do not favor establishing an artificial opening between the intestine and stomach unless every other procedure fails. But a Finney operation maintains the normal route. It establishes free and perfect drainage, and in the five cases in which I have practised it I have had very satisfactory results. So that I would favor the Finney operation rather than gastroenterostomy under the conditions above named.

Second, relative to the maintenance of the gall-bladder, I have observed the excellent results that have followed the excision of the gall-bladder in those cases in which it is ordinarily advised to do such an operation. In cases of malignant disease or gangrene and in cases of stricture of the cystic duct, the results following the removal of the gall-bladder have been so satisfactory that I have been led to excise that viscus under other conditions than those named, and my results have been quite as satisfactory. Hence I am not wedded to the idea of maintaining the gall-bladder as against the idea expressed by Dr. Porter, that when in doubt he leaves it. On the other hand, if I were in doubt I would take it away. I would do that by cutting it off at the cystic duct, dilating the duct (and it is a good procedure to follow), dragging down the hepatic duct, and exploring both this duct and the common duct. A split rubber tube, with one limb up and the other down will, by means of a purse-string suture around the cystic duct, establish just as perfect and satisfactory drainage as if the gall-bladder was left, and in many instances better drainage. In four cases I have been surprised to recover stones from the hepatic duct when I did not know the stones were there previous to this procedure; so that Mayo

Robson's statement that in 40 per cent. of his cases he finds stones in the common duct, I am rather led to believe is true, and due to the fact that he explores the common and hepatic ducts more systematically than has been done heretofore.

DR. SMITH (closing the discussion).—There is just one thing I would like to refer to in connection with the case history which I did not read as it was rather long, and that refers to the absolute disappearance of the gross symptoms in chronic pancreatitis after drainage of the gall tract. This patient, a woman fifty years of age, on whom I operated November 4 for rupture of the gall-bladder sixty hours after the rupture had taken place, had given for over a year pronounced symptoms of chronic pancreatitis. At the time of the exploration the head of the pancreas showed it was enormously enlarged, in fact the largest I have ever seen of chronic inflammation, having all of the characteristics that pertain to cases of chronic pancreatitis. This woman's gall tracts were drained for fourteen weeks and following the peritonitis, occasioned by this rupture and infection of the upper abdomen, she gradually developed practically complete obstruction of the duodenum; therefore, on the nineteenth of July, I did a gastroenterostomy for the relief of that condition. Exploration of the head of the pancreas at that time, eight months after the first operation, and after fourteen weeks of biliary drainage, showed it to be softened and so natural that it was hard to find. The enlargement had disappeared. This question of how long to drain the gall-bladder in the presence of chronic inflammation of the pancreas, we have, of course, not settled, but it is one upon which a number of us are making careful observations. I hope at some subsequent time to report to this association the observations which I have made in quite a number of cases of chronic pancreatitis operated on within the last few years.

As to the Finney operation in these cases, I have had two of them in which I have done gastroenterostomy. The Finney operation to my mind is theoretically the best operation for pyloric obstruction, because it reestablishes the opening where nature intended it should be, and where the contraction of the muscles of the stomach will force the food invariably through there so long as there is the slightest opening. The Finney operation in the presence of extensive, firm, dense adhesions is extremely difficult of performance, and it is because I did not wish to disturb the adhesions that I performed gastroenterostomy. I could have separated the adhesions and probably liberated the duodenum and overcome the angulation of it, but I did not consider that advisable because these adhesions are so liable to reform after the operation. For that reason I did a gastroenterostomy and I must still feel in similar cases (they are rare of course) that gastroenterostomy is the indicated operation.

EXTIRPATION OF THE UPPER PORTION OF RECTUM AND SIGMOID.

BY

THOMAS B. NOBLE, M. D.,

Indianapolis.

(With three illustrations.)

ANYONE encountering a stricture in the upper segment of the rectum will not find much in our textbooks to make his attack clear or easy. Organic strictures of the rectum are now being operated by three distinct routes—perineal, sacral and abdominal, or by a combination of these. Strictures which can be met by the perineal operation are usually simple and insignificant as compared with those high in the rectum. These latter must be reached either by a suprapubic or sacral incision. In either case, the peritoneum must be invaded and an end-to-end anastomosis made deep in the pelvic cavity where, in the nature of things, such procedure becomes very difficult.

Everyone knows that it becomes necessary at times to establish an artificial outlet or anus at some point of election and everyone knows, as well, that the annoyances and discomforts following this makeshift, are anything but desirable. There is but one ideal result to be obtained in all of these cases, and that is an intact ventral wall and an intact colonic tube with functionating anal sphincters.

My personal experience is limited to four cases of this class, and in them I have been impressed with the advantages of the abdominal route over the sacral, and it is to emphasize this fact and the means employed, that I present this brief paper.

Mrs. W. is thirty-three years of age and has been married five years. She gave birth to twins four years ago. Her father died of pneumonia. Her mother is living but now is suffering with fibroid phthisis. Her mother's mother and two of her mother's sisters died of consumption. No malignant disease has existed in her relationship. This patient has had measles and chickenpox, but otherwise has enjoyed good health until the onset of present illness. Her first symptoms began in July,

1907, two years and two months ago, with suprapubic pains, periodical in character, lasting from two days to two weeks. These pains continued to recur in this region until the following January, when they were then referred to the rectum. On getting out of bed each morning she would be seized with a violent rectal tenesmus, to be followed by incontinence of gas and mucus, sometimes blood-stained. Later, pains sprang up in the left iliac and sacral regions. She now began the regular use of codeine and morphine, which she was taking in large doses at the time I first saw her. On about the thirtieth day of May, 1908, the patient submitted herself to a laparotomy at the hands of a very competent operator who, after direct examination, closed the abdomen with the judgment, expressed to the husband, that the case was inoperable and nothing could be done.

Following this operation, the patient went home and placed herself in the hands of an osteopath. This gentleman treated her seven months and pronounced her cured. But, *mirabile dictu*, she immediately went to bed and there had to remain. In January of this year, the patient was examined by another surgeon, who after a week's observation in one of our hospitals, sent her home again with no encouragement for further relief. So it fell to me to see this case during the latter part of April. I found the woman much emaciated, weighing ninety pounds. Her appetite was poor, liquid diet being taken, and bowels moving only by constant use of active cathartics and colonic flushings. The stools had to be kept in fluid form all the time. Temperature 99, pulse 110. Lungs showed no cough; no râles, no dulness, no expectoration. Heart—no hypertrophy, no dilatation, no dyspnea, cyanosis or edema. Urine had no sugar or albumin. Abdomen retracted and abdominal muscles tense. No tenderness or swellings on palpation. Uterus, tubes, and ovaries had no pathological changes.

The finger introduced into the rectum came upon a stricture, the lowest limits of which were as high as the finger could be carried. The stricture was now almost completely occluding the gut and was produced by some infiltrative growth, which involved the entire thickness as well as circumference of the bowel. The mucous membrane covered the growth as far as could be palpated. It was somewhat nodular, hard, very slightly movable, tender and caused exquisite pain in the back under sharp pressure. Through the vagina the same physical characters were observed as felt through the anus, the mass extending as

high as the fingers could be carried through the posterior vaginal fornix. The diagnosis lay between hyperplastic tubercular proctitis and cancer. She had been given large quantities of iodide of potassium.

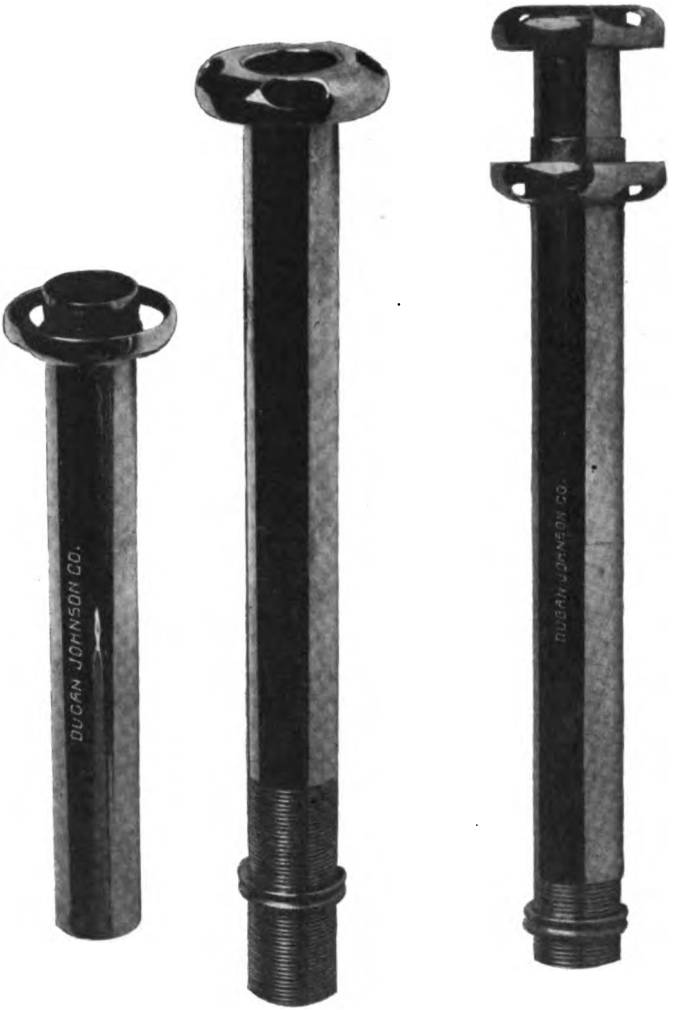
It was very evident that the patient could live but a short time without some operative interference. This she herself fully realized and was very anxious that something be done. It seemed that we had the choice of two courses to pursue—namely, an inguinal colostomy or complete extirpation of the growth with re-establishment of bowel function. Personally, I have never been much attracted to the operation of colostomy, and my experience with it has been only to continue suffering and discomfort. I would not be understood as entirely eliminating the operation, but would choose it only as the operation of last election.

The patient was anxious to have the growth removed and it seemed possible to me to do so, providing we could devise some way to make a quick and secure anastomosis. She was then removed to the Methodist Hospital and put on supportive treatment for one week, consisting chiefly of beef juice and strychnine.

During this time I had made an instrument, which I shall presently exhibit. It is composed of two tubes, seven inches in length by three-fourths inch in diameter. One tube fits closely within the other. On one end of the outer tube is brazed a concave collar half an inch in width, the concavity being directed away from the other end of the tube. On the same end of the inner tube is a like collar, with its concavity toward the concavity of the collar of the outer tube. On the other end of the inner tube threads are cut with a thumb screw to be screwed down against the same end of the outer tube. By turning this thumb screw, the collars at the other end are made to approach or separate from each other at the will of the operator.

The patient was now prepared for the operation, by having the abdomen, vulva, vagina and inner aspect of the thighs thoroughly scrubbed and sterilized. The anal sphincters were moderately dilated. The lower portion of abdomen and inner aspect of thighs were left uncovered—the thighs separated. The abdomen was now opened from symphysis to umbilicus. Trendelenburg's position showed three coils of small intestine and a process of omentum adherent, by inflammatory exudate, to rectal mass back of uterus; tubes and ovaries were free.

These coils were separated by finger dissection, one coil being so angulated as to necessitate the introduction of a McGraw ligature in anticipation of a possible obstruction.



Noble's anastomat open. Noble's anastomat closed.

A transverse incision through Douglas's pouch into the vagina was next made. One end of a strip of gauze, three inches wide, was now carried down through the abdominal wound, on through the incision in Douglas's fossa, out through the vagina and the

two ends being brought together were tied by an ordinary knot in front of the pubes, under sufficient tension to cause the uterus, tubes, ovaries and bladder to hug closely the pubic arch. This procedure puts the uterosacral ligaments under strong tension and brings the whole pelvic field into plain view and of easy access. The posterior wall of the vagina and the uterosacral ligaments were next dissected from the rectum, the ligaments marking the lower border of the rectal growth. No hemorrhage occurred during this dissection, which was done by the fingers alone. The rectum was then clamped well below the mass and cut off below the clamp, leaving about three inches and a half of the rectal tube below. The upper end of the rectum, including the growth and a considerable portion of the sigmoid—the whole measuring about twelve inches—were now cut away. Some of the lymph nodes in the mesocolon, leading from the lesion, were enlarged and these were also included in the exsection. This necessitated the removal of a wedge-shaped section of mesentery, the apex of which reached close to the bifurcation of the aorta.

When the proximal segment of colon was brought down to the rectal segment, it was observed that acute angulation with tension, existed at the splenic flexure. This was overcome by slitting the peritoneal reflexion over that portion of the gut. Coaptation of the two ends could now be accomplished with ease. Purse-string sutures were run around the cut end of each segment. The above described instrument was next introduced through the rectum; the ends were tied down as in use of Murphy's button, and the thumb-screw tightened below, which approximated the ends perfectly, a few Lembert sutures being used for reinforcement. The raw area left by removal of the growth was covered by suture of the surrounding margins of peritoneum. A small vaginal drain was left, a rubber bag was placed over the lower end of the shaft of the instrument to catch the bowel discharges, and the abdomen then was closed. No more blood was lost during this operation than in an ordinary hysterectomy. There was but little shock, the symptoms at no time causing alarm. The colon was kept empty and clean by daily irrigations through the tube by means of a soft rubber catheter. The bobbin was passed on the twelfth day; the abdominal wound healed by primary union; and the patient has since gained thirty pounds in weight.

PATHOLOGICAL REPORT FROM DR. F. B. WYNN.

I desire to offer the following pathological report upon the specimen you submitted to me for examination.

1. *Gross Specimen.*

This represents eight inches of exsected rectum and sigmoid flexure of the colon. The longitudinal section of the gut, reveals a growth within the viscus, which obliterated the lumen in the rectum, and extends upward about five inches. There is very slight gross evidence of invasion to the perirectal tissues. The muscular layers of the bowel are considerably hypertrophied.

2. *Microscopic Examination.*

Stained sections including the wall of the intestine and the growth show a large amount of dense fibrous connective tissue stroma, in which were variously shaped acini more or less completely filled with columnar or polygonal epithelium. Within the muscular layers, it was possible in a few places to find strings and small clumps of epithelial cells. Likewise, in one small lymph node in the intestinal wall, was found a clump of epithelial cells; but the amount of invasion into the muscular layers and beneath the peritoneum was surprisingly meager, considering the nature of the growth within the lumen. Diagnosis: scirrhus carcinoma.

I report this case in order that I may introduce an instrument which I feel confident will be helpful in cases of this kind. It possesses no new principle. It is only a result of the study and use of Murphy's button—the most ingenious device ever introduced into the abdomen. It has some advantages over the button here, in that it can be introduced quicker; serves as a splint to the soft parts; admits of irrigation of the colon and prevention of impaction; and by continuous drainage keeps the bowel quiet, thereby favoring prompt and perfect union. I believe it is a useful means to the ideal end—an intact abdomen, intact intestine, and competent anal sphincters.

DISCUSSION.

THE PRESIDENT.—This is an interesting case, and the unique method of the author in handling it, together with the device that Dr. Noble has shown, is epoch-making in surgery; and I wish to congratulate Dr. Noble and the Association on having this interesting subject which he has presented, brought before it at this meeting.

DR. CHARLES N. SMITH, Toledo.—This device appeals to me very much because of a case a few years ago in which I made an anastomosis with the rectum low down, so low, indeed, that I had to tuck a Murphy button at the end of a long forceps to get down with a long needle-holder to sew. I experienced such great difficulty in placing the Murphy button that I see now how, if I had had this instrument, I could have placed it in position very easily. I believe in certain operations this instrument will meet a distinct want. In cases of malignant disease of the sigmoid there is one thing I think we have many times overlooked, one that we must not overlook any longer, and that is the location of the primary glands in relation to the sigmoid. Jepson and Jameison, of Leeds, England, have shown by repeated injection of the lymphatics coming from the sigmoid that there is a primary lymphatic gland 1½ or 2 inches to the right of the splenic flexure point, or which is behind the transverse colon, and that gland must be removed invariably when resecting the sigmoid for malignant disease, or we will get a recurrence in that gland. It is a primary and not a secondary gland. I operated on one of these cases five years ago in which I resected the sigmoid, going up 3 inches to the right of the splenic flexure, and resecting the bowel at that point, simply because there was an enlarged gland; not knowing anything whatever of Jepson's and Jameison's work, I mobilized the transverse colon, and made an anastomosis. The woman bore a child, lived four years, and died from pneumonia. In one case I refused to operate because I found the primary gland at the splenic flexure as large as a goose-egg. I could make out no gland connection with it there, so in that case I refused operation.

Another case, which I propose to operate on Saturday of this week, is a small malignant growth in the sigmoid, but no palpable enlargement of the mesenteric gland. Yet in that case, as I believe necessary in all these cases, I shall go to the right of the mesenteric gland in my resection, and make the anastomosis with the transverse colon and sigmoid below the site of the malignant growth.

DR. JOHN YOUNG BROWN, St. Louis.—There are two points in the paper that appeal to me personally and these pertain first to the technic; and, second, to the instrument exhibited by Dr. Noble. Those who have had experience in the surgery of the lower bowel fully appreciate the difficulty of making an anastomosis in that locality. It is simply astonishing the ease with which the large bowel can be manipulated, but in putting the button in or doing a suture operation, the difficulties can only be appreciated by those who have done work of this type. This instrument is a valuable contribution to this particular class of surgical cases. It is unique in its originality; and, while many of us may have thought of it, we have never worked it out.

The other point that appeals to me strongly is the manner in which Dr. Noble handled the uterus in this case; that is, lifting

up the uterus with gauze and tying it out of the way. These little points in technic simplify work of this kind.

If I had heard no other paper at this meeting, I should feel that I was amply repaid for the journey in coming here and listening to this one, and seeing the instrument Dr. Noble has presented. I wish to compliment him on his ingenuity.

DR. WALTER C. G. KIRCHNER, St. Louis.—Dr. Noble is to be congratulated on his unique and original method of dealing with it, and on the result obtained in the case he reported. Surgery low down in the pelvis is tedious, and intestinal anastomosis here is one of the most difficult we have to deal with. We know that individuals in whom the sphincters have been destroyed are often made very unhappy. The device Dr. Noble has used in these cases has enabled him to preserve the sphincters and to allow the patient to continue life in comfort. This I think is an important consideration.

In a number of cases of cancer of the sigmoid I have been able to use a large button, but it happens occasionally that when the fixed portion of the rectum is involved it is not possible to use this device.

Another point that Dr. Noble brought out, which is often overlooked and which shows the value of the instrument, is illustrated by a case which I had recently. The patient had malignant disease of the upper part of the rectum, causing bowel obstruction. A colostomy opening was made and the patient was relieved. She objected a great deal to this opening and was willing to forego anything in order that the opening might be closed. It was then my duty to restore, if possible, the continuity of the bowel. I found the obstruction of such a nature that the tumor could not be removed, and in order to do away with the fistulous tract or the colostomy opening, the small bowel was brought down below the mass and anastomosed to the anterior surface of the rectum, using an oblong Murphy button. One-half of the Murphy button was introduced into the rectum from below and the other half was placed in the small bowel, and in this way an anastomosis was made. In this instance I had an unfortunate complication in that the button necrosed into the vagina and the patient got a rectovaginal fistula. This came about in this way: the thicker and thinner fibers of the rectum were grasped by the button. The thinner fibers necrosed first and the thicker fibers, being more resistant, tipped the button up against the vagina and in that way the rectovaginal fistula resulted. Now, if I had used such an instrument as this, I feel sure that this complication could have been avoided. I think the instrument is a very practical one and I shall try to use it in cases where it is indicated.

DR. JOHN W. KEEFE, Providence.—Dr. Noble, I believe, stated that the upper portion of the bowel was not covered by peritoneum. It seems to me the action would be quite different

from that which we get in ordinary anastomosis from the Murphy button, because we depend upon peritoneum there, while in this lower portion of the rectum we have no peritoneum. It seems unlikely that he would obtain union with no leakage unless he put a number of sutures around enclosing the instrument.

DR. WALTER C. G. KIRCHNER, St. Louis.—I hope I may be pardoned for speaking again on this subject. I recall an instrument similar to this which was used in making gastrotomy. The instrument resembled a small Murphy button with a long tube attached. A smaller tube and button of the type described by Dr. Noble would undoubtedly answer the same purpose.

DR. NOBLE (closing the discussion).—In the first place, I with to express my very high appreciation of the kindness with which this—I shall not call it new—device has been received. There is nothing new in the world, as has been asserted, but this is possibly a new application of an old principle. I feel grateful to the members for the way in which they have accepted this device. I feel it will take its place in my own work for other purposes than I have mentioned here. The time has come when we have to do some other work than we have been doing relative to carcinoma of the cervix. At one time we took out the breast of a woman for cancer, then the glands, then the axilla. Now we are taking out everything for carcinoma of the mammary glands. At one time we amputated the cervix, then took out the uterus and we are just about starting in carcinoma of the cervix. I feel that we must go wide and follow the philosophy and teaching of Wertheim, and even go farther than that and take out portions of the rectum. Without such an instrument as this in infiltrating malignant growths from the cervix into the rectum, such a procedure would be a protracted one, a difficult one, and would be attended with a high death rate. But to give you my word, the use of this instrument adds but little to the time, and but little to the shock, and but little to the loss of blood of a panhysterectomy in which a portion of the rectum would have to be removed. So I believe it has a useful purpose in cancer of the cervix. It simplifies the operation very much. It shortens the time of the operation very materially.

I believe the Kraske method and its many modifications have existed because of the fact that it was a more direct route to the pathological condition. It was more direct than the abdominal route, but the abdominal route has been attended heretofore with such difficulties that the sacral route has been invoked. But I affirm that with this instrument it is infinitely quicker, that it is infinitely more complete than the sacral route. The sacral route could not have allowed me to have taken care of the pathological condition that existed with these superimposed coils of small intestines, to have introduced the McGraw ligature, and to have made the dissection sufficiently high up

to include the mesenteric lymph nodes. So that the abdominal route, I believe, will be a matter of election, because it can be done more quickly, more completely, more safely and better.

Relative to the application of this instrument in that area not covered by peritoneum, experience has shown that the Murphy button does not do well in areas that are not covered by peritoneum. I used a Murphy button there, but with this instrument union can be so useful as to make an absolutely perfect approximation with the suture method; it may be then withdrawn. Hence, it has a place here, I feel, and will be of great utility.

MALIGNANT TUMOR OF UNDESCENDED TESTICLE.

BY

O. G. PFAFF, M. D.,

Indianapolis.

(With one illustration.)

THE case here reported is that of a Mr. H——, who was referred to me by Dr. Holloway, of Knightstown, Ind. He was a Hebrew, thirty-eight years of age; born in Indiana; a florist by occupation; had been married several years and was the father of one child. His family history showed that his father had died of cancer of the gall-bladder and two of his father's sisters had died of cancer of the stomach. He had never been seriously ill; his bowels were regular and there was no history of any genitourinary disease.

About three months before I first saw him, he had for the first time complained of a point of soreness in the abdomen just below the umbilicus; shortly after this he discovered some unusual fulness in the painful region which subsequently increased very considerably and the pain became at times very severe, so that hypodermic injections of morphia were frequently resorted to for relief. His appetite and digestion remained fair, aside from certain attacks of acute indigestion and sick headache, which had been his occasional experience since childhood.

An interesting feature was that this man and his brother also presented the condition of undescended left testicle and coexisting left inguinal hernia, and in both instances frequent attacks of pain were experienced in the malposed organ. An examination disclosed a tumor the size of a fetal head, occupying the left lower abdomen and pelvis. The tumor was freely movable within moderate limits, but was apparently attached by a pedicle to a point near the internal inguinal ring.

The mass was considered to be a malignant tumor of the undescended left testicle and three days later the man came into St. Vincent's Hospital to have it removed by operation. Through an incision made to the left of the median line, the relationships of the mass were easily made out; the pedicle was attached at the internal ring, and there were some recent ad-

hesions to the bladder which were easily broken up, the pedicle ligated and the mass removed.

The man made an uneventful recovery from the operation, but within five months died of malignant disease. I never saw him after he left the hospital and did not learn as to the location of the later growth, other than that it seemed to affect both the bladder and the bowel. The microscopical examination of the growth showed it to be a large round celled sarcoma.

Sarcoma of undescended left testicle.

The literature on the subject of undescended testicle is not overabundant, but it is sufficient to point to the condition as one which is to be considered as very much more than a curious freak of nature, and one which calls for serious consideration when met with.

Wyeth reports an interesting case of sarcoma of an undescended testicle coupled with a small inguinal hernia of the same side; in this case five days after marriage the man began to suffer severe pain in the affected region; pronounced swelling of the painful structures ensued with considerable rise in temperature; the acute symptoms were controlled by applications of ice and shortly afterward the testicle was removed.

The case which is here reported related the same history of pain accompanying the sexual act. Also the man's brother having likewise an undescended testicle of the same side and associated hernia, complained similarly of severe pain on intercourse.

Boese, Heaton, and others have reported cases of strangulation of undescended testicle from twisting of the pedicle. Evidently we must consider that undescended testicle is not to be passed over as simply a tolerable nuisance, or as an unpleasant defect, but that it is a fairly painful condition and one which is a constant source of irritation and occasionally of active inflammation; twisting of the pedicle may occur in any given case with disastrous results. There is in addition, which must not be lost sight of, a recognized tendency toward the development of malignant disease in these malposed, compressed and irritated organs, and undoubtedly it is a surgical duty in every case of undescended testicle which refuses to be brought down into the scrotum, to remove the offending organ, thus putting an end to a painful and threatening disorder.

DISCUSSION.

DR. JOHN W. KEFFE, Providence.—The literature on this subject tells us that malignant disease is very prone to follow undescended testicle, as in the case reported by Dr. Pfaff. And yet I recall the case of a physician who had undescended testicle and lived to be some seventy years of age with very little discomfort from it.

In another instance I met torsion of the undescended testicle, producing strangulation, necessitating its removal. In many instances in early life it is possible to bring the testicle down and fix it in the scrotum. That is an ideal operation and should be done early. It does not follow, however, that because a man has undescended testicle he is sure to have malignant disease develop, yet the likelihood of this occurrence would warrant us to advise always the removal of an undescended testicle.

DR. WALTER C. G. KIRCHNER, St. Louis.—I am interested to know how complete an autopsy report was obtained in this case.

DR. PFAFF.—The man lived at a distance and no autopsy was made.

Dr. KIRCHNER (resuming).—The case I have in mind was one that does not refer to undescended testicle, but there was a sarcoma of the testicle simulating hernia, and it was afterward found when the man died that there were sarcoma nodules in

the heart. The autopsy proved to be very interesting on that account, as I thought it was rather unusual.

In another case where the patient, a woman, was brought to the hospital with symptoms of bowel strangulation, the diagnosis proved to be sarcoma of the femoral glands. I stated at the time that I would not be surprised to find sarcomatous nodules in the heart, and, curiously enough, they were found at autopsy. On this account, I have asked if an autopsy was made with a view to ascertain whether metastases were found in the heart in Dr. Pfaff's case. It would be interesting to know how frequently this occurs.

In one other case it was necessary to remove the testicle that had become strangulated after an injury from the cause mentioned by Dr. Pfaff, emphasizing the importance of early operation for the relief of undescended testicle.

DR. PFAFF (closing the discussion).—I was struck with the fact that in all cases heard of and reported there was pain on sexual intercourse. The testicle is in a position and condition to be continually irritated during sexual congress, that being an additional reason for bringing it down and fixing it in the scrotum or taking it out.

SOME PERSONAL EXPERIENCES IN GALL-BLADDER SURGERY.

BY

HERMAN E. HAYD, M. D.,

Buffalo.

BILIARY drainage is exceedingly important in the treatment of the associated complications of cholecystitis and cholelithiasis, and is best accomplished through the gall-bladder. A few years ago many good surgeons and operators advocated the removal of the gall-bladder when this viscus was diseased, and in doing so they did not then realize that they were robbing the patient of the most powerful agent for the cure of his symptoms—namely, biliary drainage. At that time, in support of the idea that the gall-bladder was a useless appendage and was simply a reservoir for the storage of bile, there appeared numerous articles in the journals, written by biologists and comparative anatomists, (notably one by Woods Hutchinson in the *Medical Record*, May 16, 1903), by analogy contending that because certain animals had no gall-bladders, man could do without his, and this was especially plausible when it could be shown that a number of persons had had their gall-bladders removed and were in good health. Soon, however, the pathologist and clinician found that with acute and chronic gall-bladder disease there often existed secondary and dangerous complications, as cholangitis and pericholangitis, hepatic congestion and biliary cirrhosis, jaundice and pancreatic affections; that drainage was a necessary and perhaps all-important part in their treatment, and that it could be best done through the cholecyst.

Some surgeons have taken the position that equally effective drainage could be accomplished through the choledochus, but Deaver has well said that such a procedure is not good surgery. First of all, it is not scientific to drain foul and septic bile into the duodenum; not only because it might irritate the bowels, but because absorption might again take place through its mucous membrane, and that the most effective way to get rid of this dangerous material is to discharge it from the body through the gall-bladder at the abdominal wall.

Bland Sutton in a very interesting paper which he read before the surgical section of the British Medical Association in 1907, and which provoked a very spirited and animated discussion, took the position that the gall-bladder is a useless organ without function, a menace to life when diseased, and should always be removed. Three weeks after this discussion there appeared in the *British Medical Journal*, October 26, 1907, an equally important paper by Mayo Robson, who maintained that the gall-bladder served a very useful purpose, and should always be retained unless too seriously damaged; and Deaver, in a masterly article printed in the *American Journal of the Medical Sciences*, April, 1908, argues in a most conclusive manner that the gall-bladder should only be removed under certain grave conditions, or when its walls are so seriously involved and thickened as to render it absolutely useless; not alone because if left, it is the most direct and best drainage channel, but because it is needed by the economy to propel the bile on into the intestines by reason of its tension bulb-like action and, in proof of this function, he cites the fact that when the organ has been removed the stump is often found considerably dilated into a sort of diverticulum or secondary gall-bladder.

Another interesting point which adds weight to Deaver's contention, I have observed in my own work—namely, that after the removal of the gall-bladder and also after a simple cholecystostomy, the abdominal incision has broken open some weeks after it had been firmly united, from this great back pressure of bile; and in cases where a patent common duct existed, which was proven by the fact that much free bile was always present in the stools, clear urine was voided and there existed no jaundice even in the conjunctiva.

The old argument that stones recurred in the gall-bladder after drainage had been practised, has been pretty well disproved by the work of Kehr, Mayo, Murphy, and Deaver, who combinedly have done over three thousand gall-bladder operations, and in their experience a recurrence of gallstones has been so rare as to make them believe that they were overlooked at the time of operation and were not due to reformation or a recrudescence of the original inflammatory process. Kehr had 2 1/2 per cent. return.

Another objection to the retention of the gall-bladder was the long drain of bile for weeks and sometimes months, which was not only annoying but very distressing, and possibly caused

the existence of a permanent fistula. Biliary fistulas which require operative measures for their relief are exceedingly rare, owing to a better technic in the performance of cholecystostomy. Heretofore the gall-bladder was sewed securely to the abdominal wall, but now the careful surgeon sews his drainage tube into the gall-bladder, and then pursestrings the tube so as to avoid leakage of bile, and in case the gall-bladder falls some distance away from the abdominal wall, he surrounds the tube with a little gauze which is carried through the incision and thus a drainage canal is made by adhesions and not by permanent fixation of the gall-bladder. Mucous fistula, on the contrary, require the removal of the gall-bladder, because they have a different pathology, and in order to stop the chronic oozing, the contracted, distorted gall-bladder, which usually has a stone or stricture in the cystic duct, must be ablated.

It is now generally accepted that gall-bladder disease is the result of bacterial invasion, not only from the intestines through the common duct—which is perhaps the most frequent avenue —but also by way of the portal circulation. Organisms of various kinds are absorbed by the tributaries of the portal vein, are carried into the liver substance, and then find their way into the gall-bladder and, under farvorable conditions, develop a catarrhal or inflammatory process with their associated products. If the infection is severe, an acute cholecystitis results, with the formation of mucus and pus, but not gallstones, and the inflammatory action may be so destructive as to cause ulceration and gangrene and perforation of the bladder wall. Gallstones, however, require for their production a low grade infection with a certain degree of bile stasis, and as a result of this infection we get a proliferative inflammation of the lining membrane of the gall-bladder, and the cells thus produced undergo myelin degeneration, with the formation of cholesterin. The deposition of this cholesterin upon an organic nucleus of blood, pus, mucus, bacteria or any foreign material like silk or catgut, together with accretions of the different bile salts, produces stones of various colors, sizes and composition.

Gallstones usually form in the gall-bladder, but they are occasionally found in the hepatic ducts and bile radicals, and from these different sources find their way into the common duct, where they may remain lodged in its lumen or at the ampulla of Vater; or make their way into the duct of Wirsung; or they may be discharged into the bowel, and are then often collected by

sieving the stools. Gallstones may exist and remain in comparative innocence in the gall-bladder producing very few symptoms other than perhaps the various digestive disturbances peculiar to chronic gall-bladder disease, but if for any reason the bile ducts become more or less obstructed so that the free flow of bile cannot take place, then symptoms varying from slight distress to the greatest agony are complained of. It is believed that attacks of pain are usually the result of the movement of the stones either in the bladder itself or in their passage into the cystic duct, or in their exit through the common duct, together with the co-incidental irritation, inflammation and distention of the gallbladder and the ducts, so that biliary colic or pain is the most common and distressing symptom of calculus disease, but it is also frequently present in gall-bladder disease without stones. The pain is usually referred to the region of the gall-bladder and the pit of the stomach. It often extends to the base of the right scapula or between the scapulæ and runs sometimes into the right shoulder and down the right arm, though rarely to the left side.

Jaundice is a very important symptom, and varies in intensity from a slight staining of the conjunctiva to the most intense bronzing of the skin. It is a variable symptom, and its importance and frequency is variously estimated by different observers. Some say that it exists in only 20 per cent. of the cases, while others claim that it is present at some time in the history of the case very much oftener. It is due to obstruction of the common or hepatic ducts, either from within by stones or stricture, or to adventitious bands and adhesions or growths, angulations and distortions pressing upon their lumen from without. It may also be due, however, to a large stone perhaps impacted in the cystic duct and pressing upon the hepatic at or near its junction to form the common duct. It may be temporary or persistent in character, and depends whether the cause remains stationary or transitory, and the degree is usually in direct proportion to the amount of obstruction. Nevertheless, it is often not present and many capable practitioners have been led into fatal mistakes, and useful lives have been jeopardized and sacrificed by waiting for jaundice before a correct diagnosis was made of calculus disease.

I wish here briefly to give the history of a case which is by no means uncommon because, in my experience, many of my most dangerous operations were performed on persons in whom

no jaundice was present, nor could I get any account of its previous existence.

Mrs. L., aged fifty-one; the mother of ten children; a large, stout, fleshy, active woman, whom I saw in consultation with Dr. Hitzel, and diagnosticated gall-bladder disease with gallstones. She had been in bed for two weeks, and her suffering at times was so intense that half a grain of morphia was injected hypodermically. The pains usually came on at night about three or four hours after eating supper. She stated that in none of her confinements did she suffer as in one of these paroxysms. I sent her to the German Hospital, and kept her under observation for a few days. She had no temperature at any time, and twice it was necessary to inject morphine to relieve her pain, but at no time could I elicit pain even upon deep pressure over the gall-bladder, nor could the distended organ be felt through the thick abdominal wall. On the morning of the operation, March 13, 1909, she was slightly jaundiced in the conjunctiva and skin. Upon opening the abdomen along the line of the right rectus muscle, the gall-bladder was seen to be very distended and dark in color. After packing gauze carefully and deeply into the fossa (behind the liver), the gall-bladder was opened, thirty-eight stones were removed, together with considerable brownish, ropy fluid. After all the stones were withdrawn by forceps and spoon and the bladder made as clean as possible by very free irrigation, the gauze packs were taken out, the ducts carefully examined, and two large stones were felt deep in the cysticus. An attempt was made to milk them back into the gall-bladder, but this was only partially successful; one was dislodged and delivered through the bladder, but the other was so firmly wedged that every effort to move it was of no avail, so the duct was opened from without, and the stone was removed through the opening. It was large and cone-shaped, and evidently filled to distention the apex of the duct, pressed upon the hepaticus and caused the jaundice. The gall-bladder was then separated from the liver and removed after the stump had been carefully tied off, and a drainage tube wrapped in gauze was placed to the bottom of the cavity.

The woman reacted well and had an uninterrupted convalescence; on the eighth day the drain was removed and a smaller piece of tubing was pushed into the wound, as no bile had escaped thus far. On the eighteenth day she complained of great pain over the wound, so hot linseed poultices were applied and frequently changed, and on the following day bile discharged

freely from the incision which had opened up. It increased in amount for several days, and then gradually ceased.

In this case the bladder was not seriously crippled, and I removed it simply because I had split the wall so far down, in order to get the stone out of the cystic duct. A stricture, no doubt, existed in the duct, as no bile flowed immediately after the stone was extracted, and it evidently did not yield for many days, because no bile was discharged along the drainage tract until the eighteenth day, when either the cut in the cystic duct opened or the edges of the tied-off gall-bladder separated from the great *vis a tergo* pressure of the bile current.

Another patient upon whom I operated January 29, 1907, had a history of repeated attacks of pain for three years, and then periods of comparative comfort, occasional chills and fever for a few days, but no jaundice. I removed from a healthy-looking bladder four beautifully facetted stones deep down in the cystic duct, which when approximated made one large round concretion the size of a hickory nut. At the time of the operation I thought the cysticus was open and expected that bile would flow freely from the drainage tube, which was pursestringed into the bladder. No bile was ever discharged, but a mucous fistula continued for nine months with periods of acute suffering; and on September 1, 1907, I operated a second time and removed the gall-bladder finding one small stone deep in the cystic duct, which was overlooked at the first operation. The bladder was small and contracted, but its coats were not specially thickened, and I have no doubt there would have been no trouble occasioned by its retention. It was, however, easier to get the stone when the bladder wall was split down and, therefore, a cholecystectomy was performed. The stump was tied off carefully, but the ligature slipped and a profuse hemorrhage resulted; after some little time the vessel was found and securely occluded, and the wound was quickly closed with drainage. Bile discharged from the wound on the sixth day and continued to flow. The patient did well and has remained in excellent health.

These are the only two cases in a series of twenty-eight in which cholecystectomy was done, and of the remaining twenty-six many were acute empyemas, and six had thickened and contracted gall-bladders, but bile oozed through the duct after the stones were removed, so it was thought best to leave the bladder and drain. All did well and have enjoyed good health since the operations.

One case was an inoperable cancer of the gall-bladder in a woman sixty-two years of age. Two patients died, one a stout, young man of forty years of age, whom I had treated for years for syphilis.

I saw him first on March 22, 1906. He was dressed and about his room, but complained of pain and tenderness in the pit of the stomach and was vomiting, which he had attributed to bowling the night before and a little too much beer. I made the diagnosis of gall-bladder disease, and put him to bed. His temperature was 99 4.5. On the following day he was worse, his temperature had risen to 102 2.5 and his pulse was 116; I saw him again in the evening, as I considered him seriously ill, and on the following day his temperature was 104 and pulse 130. There was no jaundice. I took him at once to the German Deaconess's Hospital and operated. I found a very acutely inflamed, enormously distended bladder, with no stones and no adhesions, but there was considerable brownish fluid in the peritoneal cavity; over a pint of pus, mucus and bile was washed out of the bladder, a tube was sewed into the viscus and the wound closed. The operation was simple and done with dispatch, yet the man died four hours afterward. A postmortem was not permitted.

The second was a woman thirty-eight years of age, the mother of six children, youngest nine years old, whom I operated upon April 10, 1908, at the German Hospital. She had been in bed one week, was jaundiced—although not deeply—and was suffering from pain and tenderness over the pit of the stomach, with nausea and vomiting. She had a temperature of 100 1/2 and pulse 90. Upon opening the abdomen, I found the gall-bladder very small and contracted, in a dense bed of adhesions. Upon section it was found to contain two small stones and a little mucus. After separating what seemed to be a solid mass of exudate, I came upon the head of the pancreas, which was much enlarged and hard as a stone, probably a carcinoma. Bleeding was very free, and the abdomen was closed after leaving a piece of gauze in the wound. The woman died twelve hours after the operation from shock and hemorrhage, and upon postmortem examination, the pancreas was found to be the seat of scirrhous cancer. This fact I did not know until I had done much damage by fruitless tearing of adhesions, because, finding a contracted gall-bladder, I proceeded to expose the ducts.

Courvoirsier's law, which is a very useful guide for the surgeon, would have misled me in this case. He says "that in 84

per cent. of the cases of chronic jaundice, due to obstruction of the common duct, a contraction of the gall-bladder signifies that the obstruction is due to stones; a dilatation of the gall-bladder, that the obstruction is due to causes other than stones." My patient evidently had an old gall-bladder trouble with the production of stones, and a gradual contraction of the organ took place with stricture of the cystic duct and superadded cancer of the pancreas.

In the practice of surgery certain methods of procedure come to us as a result of our own experience, together with the study and careful analysis of the work of other men, and therefore as a general proposition to which, of course, there are some exceptions, I would say that, in my judgment, the gall-bladder should be removed under the following conditions:

1. For acute cholecystitis with gangrene.

2. In chronic cholecystitis when the organ is so thickened and contracted that its future function—if there be one—could not be restored, and where the cystic duct is closed, and, therefore, it could be of no use as a drainage channel.

3. In hydrops where we find a large bladder and cystic duct obstruction.

4. In cancer.

5. In gunshot injuries or perforations from accidental causes, if a partial cholecystectomy is not advisable or possible.

In conclusion I beg to add that the argument which I have endeavored to make in this paper, is that cholecystectomy has been performed altogether too frequently during the past ten years, and that it is often an unnecessary operation. That it has a higher mortality than simple cholecystostomy; that it takes much longer to perform; that the percentage cures of our patients are greater when good drainage is sought for and carried out and that this drainage is most effectual through the gall-bladder by way of the abdominal wall; and that the post-operative adhesions after cholecystectomy are greater than after cholecystostomy, and as a result, perhaps future suffering. And, finally, if for any reason surgery may again be necessary, the dangers and difficulties are much increased by reason of the absence of the gall-bladder, which is always of service as a landmark to distinguish adjacent structures.

Deaver says

When in doubt, I say drain rather than remove a gall-bladder which may recover itself; better do this even at the expense of

a fistula (mucus) which will call for a second operation, than take out a gall-bladder which may again normally functionate. Better, I say, do two operations, in an attempt to save a gall-bladder that may recover itself, and in not a few of these instances save a human life at the same time, than do an operation which will certainly sacrifice the one, if not both.

AN OPERATION FOR CYSTOCELE THAT HAS GIVEN SATISFACTORY RESULTS.

BY

FRANCIS REDER, M. D.,

St. Louis.

(With seven illustrations.)

SOME years ago, while a visitor at one of the gynecological clinics in an eastern city, the surgeon remarked that the operation for cystocele has so often resulted in failure that it has been abandoned by some operators and discouraged by others. I failed to realize the gravity of his remark as I watched with great admiration the operator's technical skill, and looked upon the completed work with a sense of satisfaction engendered by the confidence that such work instills into an enthusiast.

When the occasion presented itself to approach the surgeon with the question if he was satisfied with the operative measures he had carried out for the cure of the cystocele, he remarked: "Temporary relief is certain; as to the permanency of a cure there remains an element of doubt." I was very much impressed with this frank statement as I had expected a somewhat different reply, after such a splendid technic with a finished work that reflected the greatest stability.

Ten years have since elapsed. My experience with the various technics for the correction of a cystocele has been such that the remarks of the eastern surgeon were brought back to me. It can be said that recurrences in corrected cystoceles are quite frequent and that no particular technic will promise a permanent cure. I have operated on patients of my colleagues whom they had pronounced cured, and I know that some of my "successful cases" drifted into other hands and had to be looked after again.

It cannot be said of the failures that they were wholly due to a faulty technic; instead I would rather say that an incomplete technic was the cause. It can be readily appreciated how difficult it is to cure a cystocele when we consider the anatomy of the vaginal tract, its relationship to the pelvic structures, and the physiological causes to which the formation of a cystocele can be attributed. I can assign my failures possibly to three

factors, namely: (a) not properly attending to the urethrocele, a hypertrophied tract of vaginal tissue immediately behind the external urethral orifice, very prominent in all my cases when recurrence has taken place. A urethrocele, no matter how small, can be the starting-point of a cystocele and its principle can be readily compared to the principle of any beginning hernia. Furthermore, if such a protrusion of vaginal tissue is not properly obliterated during a cystocele operation, it may, through its wedge-like impact upon the repaired perineum, gradually weaken

FIG. 1.—Cystocele as usually met.

this important structure and eventually cause a recurrence of the former trouble. (b) Neglect to loosen the bladder sufficiently from its anterior uterine attachment. (c) Failure to construct a pelvic floor adequate to give the proper support to the anterior vaginal wall.

An essential factor to a successful operation is the denudation necessary on the anterior wall. No fixed rules can be laid down as to the amount of tissue to be removed for the reduction of the hernia, nor can any definite principle be adhered to whereby the limits of the denudation for the proper approximation of the

flaps, without encroaching on the proposed field of operation upon the posterior wall, can be determined. The good judgment of the operator and his experience will aid him in meeting the requirements of the particular case. The steps of the operation are as follows: the patient is placed in the lithotomy position at the edge of the table. With a tenaculum forceps the anterior lip of the uterus is seized and drawn downward toward the vulva. Another tenaculum forceps seizes the urethral

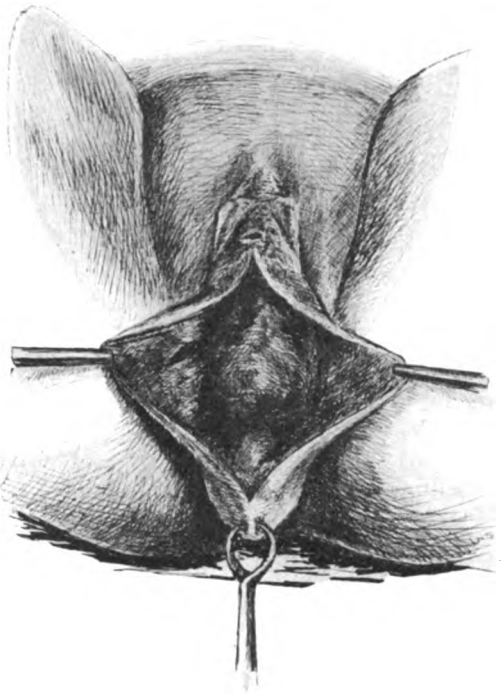


FIG. 2.—Separation of bladder from vaginal wall.

extremity of the cystocele about a quarter of an inch below the external urethral orifice. Sufficient traction in opposite directions is made upon the forceps to cause the tissues over the cystocele to be put on a gentle stretch, thus facilitating the placing of the incision which is carried from the urethral to the cervical extremities.

The incision is made through the vaginal mucous membrane to the depth of the bladder wall. The dissection of freeing the bladder from the vaginal wall is a skilful procedure. Its satisfactory execution and the ease with which it may be accom-

plished rests wholly with the operator's fancy and expertness in such work.

I have met with dissections that have proven quite difficult on account of the thin vesicovaginal septum and the scarcity of cellular tissue. Fortunately, there is usually a moderate degree of hypertrophy of the vaginal mucosa, as well as a sufficient amount of cellular tissue in a well-developed cystocele, that will enable the dissection of the flaps to be accomplished more easily and more rapidly. I have found that I could facilitate my work

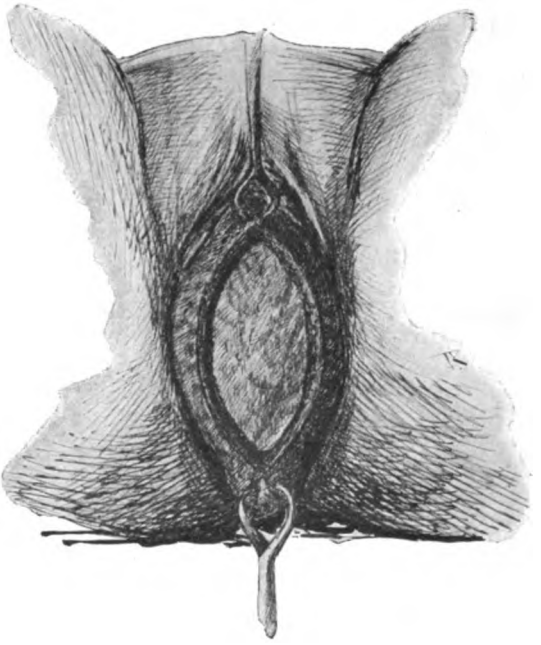


FIG. 3.—Showing resected flaps of vaginal mucosa.

by using a cuticle knife, such as is used by the manicure. The knife has no point and the shape of the blade is such that it can be made to cut in any direction with great convenience (Fig. 7).

The beginning of the dissection is usually attended with some little difficulty till the cellular space can be demonstrated satisfactorily. After that much of the work can be carried on by gauze dissection. As the dissection progresses, it remains optional with the operator whether he continues the use of forceps or his fingers to hold and manipulate the flap. Whenever I can do so I prefer the use of the fingers covered with gauze.

In making the dissection it is advisable to hug the vaginal wall closely, particularly at the base of the bladder and at the location of the ureters. After the vesical wall has been sufficiently exposed, the bladder is detached by blunt dissection from the anterior surface of the uterus. The vesico-uterine fold of peritoneum is not opened.

It is not an easy matter, where the laxity of the tissues is so pronounced as is found in a well-developed cystocele, to determine

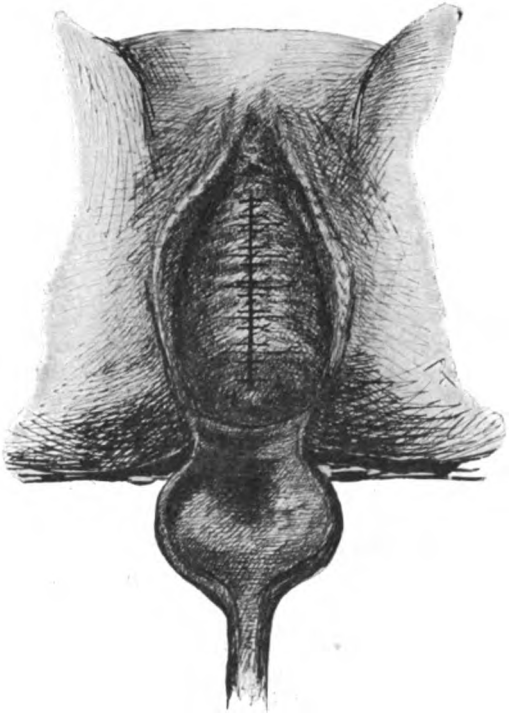


FIG. 4.—Operation complete. Showing application of interrupted sutures.

the proper amount of tissue that is to be sacrificed from the flaps to obtain an accurate approximation.

Clamping the margin of each flap separately with several forceps, having an assistant press back the bladder with a narrow retractor, and drawing the flaps over the exposed bladder toward the median line, has proven a satisfactory way to determine the extent of the flap resection. After the flaps have been resected to conform to the requirements of the case, the denuded area should be ovoid in shape and should be free from corners,

as these are difficult to approximate and are usually doubtful points during the reparative process. It is a matter of some importance that the vaginal margin be dissected up all around

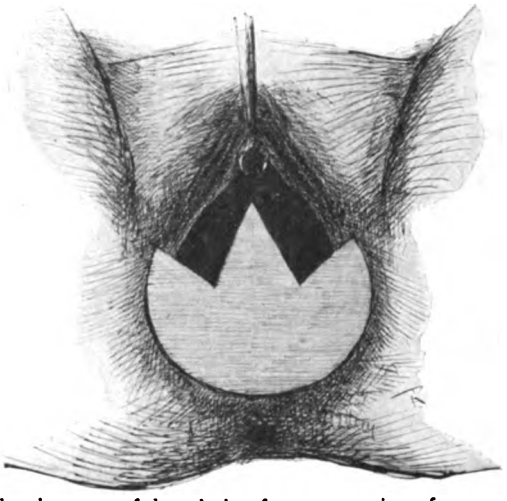


FIG. 5.—Showing area of denudation for construction of new perineum.

from the underlying tissue for at least a quarter of an inch, so as to permit the vaginal wall to slide over the base of the bladder when its edges are drawn together by suture.

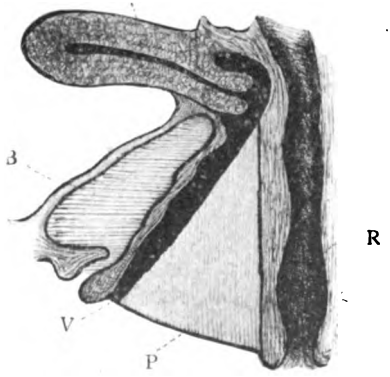


FIG. 6.—Sagittal section showing the newly constructed perineum and the support it gives to the anterior vaginal wall. B. Bladder. V Vagina. P. New perineum. R. Rectum.

The suture is usually started at the cervical angle; here the vaginal wall is sutured to the uterus as high as the internal os with No. 2 chromicized catgut. This procedure is very desirable,

as it gives additional support to the base of the bladder. It disposes of the antero-posterior tissue redundancy, and in that way aids in obliterating the urethrocele, thereby often obviating the necessity of a transverse dissection in the urethral region. After the vaginal attachment to the uterus is made, the rest of the vaginal wound is sutured with No. 2 chromicized catgut with either an interrupted or a continuous suture. The interrupted suture appeals to me in this work. Its introduction appears to be more satisfactory.

In placing the suture a strong, full-curved sound needle is used. The needle is introduced through the vaginal wall about one-fourth of an inch from the margin. In traversing the wound area to the opposite side, portions of the vesical wall, or the con-

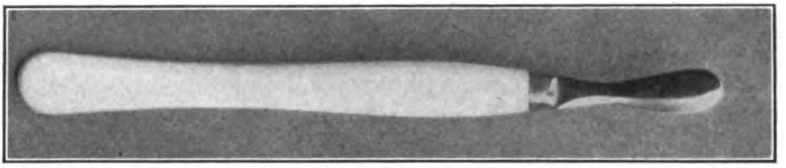


FIG. 7.—Knife for separation of the vagina from the bladder wall.

nective tissue attached to it, are picked up to prevent the forming of dead spaces between the bladder and vagina. The interrupted sutures are placed about a quarter of an inch apart. After completing this suture line, a running suture of No. 1 chromicized catgut is introduced half-deep along the vaginal wound to give a better approximation.

To relieve the strain upon the tissues a sufficient number of silkworm-gut sutures are introduced at intervals of half an inch along the line of greatest tension. These latter sutures are allowed to remain up to the fourth week, when the newly built perineum will permit of sufficient manipulation to remove them.

The final step is the construction of a pelvic floor that will insure the proper support to the anterior vaginal wall. The accompanying illustration (Fig. 6) will show the character of such a perineum. The bringing together of the levator fibers, a firm union of the vaginal tissue in the area of the sulci, and a denudation about the vulvo-anal region that is more extensive than is usually practised in an ordinary perineorrhapy, are its essential features.

GANGRENE OF GALL-BLADDER.

BY
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If statistics and a perusal of literature are trustworthy standards, gangrene of the gall-bladder can truly be classified as a very uncommon affection. Few typical cases have been reported and the histories of some of those recorded are very incomplete.

Cholecystitis, as we now understand it, is usually described as an inflammatory process, and from an etiological standpoint the factors responsible are mostly of microbic origin. In the virulent forms where the gall-bladder wall becomes necrotic, the ability to trace its etiology to some definite factor or factors is at least of interest, and along this line I present a case report and this short paper as one of inquiry.

Classifying bacteria in cholecystitis it has been found that the bacillus coli communis, bacillus typhosus, staphylococcus albus and aureus, streptococcus pyogenes, and the pneumococcus predominate. Peterson in his series of fifty operative cases for gallstones found bacteria forty-six times as follows: the bacillus coli communis thirty-six, staphylococci six, and streptococci four times. Hartman in his series of forty-six cases found bacteria present in thirty-four; the bacillus coli communis in twenty-three; staphylococci in three; and streptococci in two cases. Five of the thirty-four showed a mixed infection and in ten of this number the bile was found to be sterile. Deaver also made an analysis of fifty cases and reported bacilli twenty-nine times as follows: bacillus coli communis nineteen; typhoid bacillus six; staphylococci three; streptococcus one.

Grouping the above tables as given, we find that in 144 cases of cholecystitis, there were 107 cases traceable directly to microbic origin. It is reasonable to feel very sanguine that infection is the primary cause, but we are confronted with much doubt as to the route through which the infection is carried. It at least affords much speculation whether in given cases it is an ascending infection, starting from the duodenum traveling up and along the common to the cystic duct and then gaining entrance into the bladder itself, or whether it should be grouped

as a descending infection entering by means of the vascular and lymphatic system of the gall-bladder. Whenever the alimentary canal above the ileocecal valve is filled with infectious material, as occurs in an acute appendicitis, it seems very possible that an infection through the common duct would be the natural sequence. Experimentally it was found that when the common duct was ligated, as performed by Miyaka, the gall-bladder was soon infected.

To support somewhat the latter view we know that in the finer branches of the portal system colon bacilli are often found, that a healthy liver destroys or attempts to destroy these bacteria, but in cases where the liver is not properly functionating, bacilli readily reach the bile in the gall-bladder. The colon bacillus usually limits its destructive work to the liver and does not as a usual thing extend beyond into the general circulation. Lymph vessels accompanying the portal and hepatic vessels constantly carry lymph from the liver, so the infection may readily reach the gall-bladder through these superficial lymphatics.

A stagnation of bile current and bacterial foci in the general circulation are factors which may account for some cases of infection of the gall-bladder. Our general conception of the septic qualities of bile has been, that if it be discharged into the abdominal cavity serious trouble is likely to ensue, but so many cases are recorded where no serious symptoms supervened, we are forced to the conclusion that bile must not be looked upon as dangerous material in the majority of cases.

A question of great importance to all surgeons is—does a gall-bladder which is once diseased ever return to its normal condition? Can thorough drainage effect a perfect cure, or is removal imperative when a gall-bladder is once thoroughly infected and if once infected, is it not a source of constant danger? Experience has been a great teacher in the management of infected gall-bladder cases, and we are on the road to satisfactory surgery of this important part of the human economy. The period when gallstones form is usually some time after middle life, but we know that they have been found at any age.

It is very uncommon and considered somewhat of a pathological curiosity to find gallstones in the very young, but a number of cases are reported. For example, portal and Lieutand even report cases in the newborn and Walker in an infant of three months. Naunyn makes this statement, that every tenth human being has gallstones, while Kiel in his autopsy records made it

5 per cent. and Schroeder 12 per cent. They also found that after sixty years of age one out of every four showed gall-bladders to contain stones, and of this number one-fourth was in men and three-fourths in women. To be somewhat more specific, in 50 per cent. of the cases the patient is over fifty years of age, and when the age is given as twenty-five or under gallstones are uncommon.

It is so rare to find gallstones in young unmarried women, that Naunyn puts himself on record as saying that at least 90 per cent. of the cases occurring in women, were in those who were married, and from my limited observation this statement is correct. In 1892 Naunyn gives a report of his investigations and states that the epithelial cells within the gall-bladder give rise to the cholesterine found in the gallstones, and in pure cholesterine stones bacilli have been found which formed the nucleus. Mignot and Gilbert made a series of interesting experiments upon animals in order to produce in their gall-bladders, gallstones. They injected properly attenuated bacteria with the result, gallstones. Also they tied off the cystic duct then introduced some foreign body to which bacteria could cling with the result, gallstones in some five or six months, which was considered sufficient time to allow for their proper development.

Richardson in some cases where the bile became stagnated found enormous clumping of bacilli, and he suggested that these little groups of clumping matter might be the starting-point for the formation of a stone. He also states that in some instances when gallstones are formed, they may have absolutely no influence in the production of an infection by their presence, but only indicate abnormal condition of the bile. In cases of cholecystitis one cannot but be struck with the very remarkable frequency of a pre-existing typhoid. Cushing found that in thirty-one cases of cholecystitis operated upon at Johns Hopkins Hospital, ten had a previous history of typhoid fever.

All evidences point to the infection coming through the blood in cases of typhoid fever and whenever a pure culture was made of the contents of the gall-bladder, the typhoid bacillus was nearly always found. Chiari examined the gall-bladder of twenty-two cases who had died of typhoid and found the bacillus nineteen times. This statement has been made lately and not contradicted—namely, that cholecystitis rarely if ever occurs in one who has not had typhoid fever. Cushing experimented upon

the gall-bladder of dogs introducing the typhoid bacillus directly into the bladder, but the bile had a destructive influence upon the bacilli for, at the end of twenty-four hours, they could not be found. Gilbert and Girode by their experiments in 1890 found that the typhoid bacillus had a suppurative action, that when the pus obtained was examined it was found to contain the typhoid bacillus.

Whenever the infection is of a virulent character and there is some obstruction to the flow of bile, pus soon forms and unless drainage is established a perforation will result, and an infection of the peritoneum will rapidly follow. If a stone be so lodged or so fixed that it forms an obstruction in the presence of a virulent infection, and is not dislodged or removed, the gall-bladder will become gangrenous. Again, if the gall-bladder be blocked say in the cystic duct a hydrops will follow and may remain so for some time, but if it be infected an empyema results.

If the case be an acute virulent suppurative inflammation, the gall-bladder walls become enlarged and softened, sometimes markedly so and its color changes from a dark red to a green. Naturally many adhesions will form to the surrounding organs. The mucous membrane is destroyed and ulceration occurs usually at or near the fundus with, in many cases, a resultant peritonitis, or a perforation may take place into the stomach or intestines. In the so-called gangrenous or phlegmonous form, the destruction of the walls of the gall-bladder may be very rapid. The following case of gangrenous gall-bladder presents many interesting features.

Mrs. —— referred by Dr. Wm. Johnson. Age, fifty-three. Looked like a woman of seventy. Was of the unintelligent class and even the following incomplete short history was obtained with difficulty. Has had a number of attacks of fever with violent pains in upper right side, but none so pronounced as the present attack which has lasted about a month, hence her reason for seeking aid. Mother of four children—married twenty-eight years; has had the diseases of childhood, also typhoid at the age of twenty-six, pneumonia at age of forty-two, and from the latter disease claimed she had never fully recovered. Appearance like that of a malignant cachexia. Slightly jaundiced, very thin, and facial expression that of a chronic sufferer. Complained bitterly of pain in gall-bladder region; constipated for years but now had a septic diarrhea. Appetite very poor, in fact refused food for a number of days as she claimed it passed through undigested.

Temperature 101°, pulse 130. Some muscular rigidity but not pronounced, and a small mass the size of an egg could be distinctly felt. Patient's condition would hardly allow an immediate operation so she was removed to hospital, stimulated for two days. There being little or no improvement it did not seem wise to defer operation any longer.

Incision revealed a matted condition of the intestines, adhesions numerous and all landmarks utterly destroyed. Upon careful separation over gall-bladder region I came upon a number of little pockets of pus and a black mass, which upon gently liberating proved to be the gall-bladder. Upon traction its walls gave way very readily and underneath was a large stone now crumbled into many fragments, mixed with pus and bile. The field was carefully mopped dry, no more adhesions disturbed, an extra large rubber drainage tube inserted and stitched into that part of mass which I judged to be about the location for the duct. No discharge appeared for twenty-four hours other than a little bile-stained serum, which in another twenty-four hours became mixed with pus; at the beginning of the fourth day bile and pus was draining in large amounts through the tube. The temperature and pulse became normal the fourth day. The diarrhea ceased, appetite improved and the patient left hospital in three weeks in fair condition except for a fistula which remained open. The jaundice gradually became lighter but never entirely disappeared.

Two years afterward I heard the patient was up and around doing household duties, but the fistulous tract remained open, and at the present time as far as I know her condition remains unchanged.

A NOTE ON POST-PARTUM HEMORRHAGE.

WITH TWO QUICK WAYS OF MEETING IT.

BY

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New York.

AN attentive and discriminating ear may sometimes distinguish a certain tone in a speaker's voice which evidences that the man is only uttering words, but the brain behind the voice has no conception of the ideas expressed in those words. As an instance we have but to recall medical student days and our stumblings over physical diagnosis and its "percussion note" and "pitch." How glibly we talked of high and low and how we tried to persuade ourselves that we understood, as we repeated what the books said! How we hammered on chest, thigh, abdomen, walls and tables till our fingers were sore! How in answer to eager questions, our teachers made things muddy by explaining that "pitch" had nothing to do with "quality"; not one had gumption enough to tell us to "sing the note."

Well, all through that time of darkness our words were clear but our voices had the tone-quality alluded to and that quality marked our utterances as mere "student-patter" of bright sentences but dim understandings; of correct verbal explanation and very limited mental comprehension.

The same old student-patter and the same old tone and inflection may be found to-day when the average physician speaks with assumed familiarity on the subject of post-partum hemorrhage. A listener who has managed just one first class hemorrhage of this sort, and who knows, and who knows that he knows, how deep the accompanying shock is, will have conveyed to his ear that peculiar impression of words, combined with his mental concept, that the speaker never saw a genuine instance of post-partum hemorrhage in his whole life. He may, however, discover much grim humor in such statements as "ten minutes were well spent in hand-sterilization," when the emergency that he himself met gave him scarcely time to remove an overcoat, and he may smile silently at the idea of any leisurely procedure in face of a hemorrhage which he found, possibly, but little less

rapid than decapitation in a fatal issue. Death is possible even though every facility, assistance, and management are within easy reach; and it is accompanied by peculiar sadness inasmuch as labor has been completed and a motherless child is left.

Treatment begins with precaution; and an excellent preventive is a cupping glass to each breast. These should be at once applied when the head is delivered, if the labor has shown any symptoms of uterine inertia, or even if progress has been slow or exhausting to the mother. The uterine contractions produced are clonic and therefore simply reinforce nature's processes in a natural way. I am informed that among savage peoples if there is any delay in the delivery of the afterbirth the child, or even another and older infant of some other woman, is at once put to the breast. I have tried it several times but it should never be combined with Credé's method. The one should, or may be, used after the other but if both are used simultaneously the placenta is expelled with force. Some of the membranes are torn off, hence remain behind. This happened but once in my practice and then through the enthusiasm of an assistant; the placenta fairly jumped out of the vulva, examination showed most of the membranes, or at least most of their hanging ends, missing—and owing to the weak condition of the patient curettage was not done for seventy-two hours; but then the dull wire curet and the finger removed just about what might have been anticipated. Strange to say there was no alarming or even noticeable excess of bleeding and the uterus was well contracted. The cupping glasses are good but they are nothing like so prompt, neither are the contractions so powerful, as those resulting from suckling a child. In other words they are substitutes used for reasons of availability and diplomacy.

Credé's manœuvre has an established value but as sometimes misused it is unnecessary traumatism; it has a proper time, place and mode of application, and it is something very different from driving the clenched fist into a woman's abdomen at the end of the second stage of her labor. If the squeeze of the operator's hand but slightly reinforces the natural uterine contractions, in such a manner that only the weight of the hand rests on the fundus during the quiescent interval, and the thumb and fingers execute a sort of rolling-kneading movement during the active period then the results are usually excellent. The point to be emphasized is that the Credé's method properly applied is what is known by masseurs as "simple petrissage"

and it is never "compound petrissage" or any other proceeding which would either squeeze the uterus against the spine or cause fatigue of the massaging hand; and, furthermore, the desired uterine action bears no proportion to the force employed, therefore petrissage is more effective than violence or force which can only produce traumatism directly, and the issue sought, only crudely.

Ordinarily there is a distinct advantage in giving the patient a rest of forty-five minutes after delivery of the child, if she can get so much repose, for nature sometimes intervenes, and during this period watch, or have an assistant watch, the pulse primarily, the uterus secondarily, and both carefully. A pulse rate under 105 evincing a tendency to fall means that the uterus will care for itself. On the contrary a rate of 105 or over maintained for ten minutes is the largest kind of a danger-signal. It means that massage of the fundus and all appropriate means should be at once initiated. It has been urged against allowing a little rest to a an exhausted woman that it leads to a partial separation of the placenta and the accumulation of blood behind it, but a placenta generally does begin to separate partially and the partial separation extends until complete; but I never have heard that any hemorrhage visible or concealed, external or internal, could be very urgent, or large, without affecting the pulse.

Experience with the Rose bandage leads me to think that a lax abdominal wall is an important factor in causing hemorrhage; as when this bandage is applied after ordinary labor, there is nowhere near the amount or duration of flow that there is without it. In post-partum hemorrhage it should not be used until the danger is past and the uterus contracted. Its advantages are: it holds the abdominal organs in place, it produces necessary pressure on the nerve plexus along the aorta by taking up the slack left by the disappearance of the pregnant mass, it equalizes the abdominal circulation and probably through this stimulates the abdominal brain into action and thereby maintains firm uterine contraction.

It may not be generally known that an ounce of vinegar administered by the mouth will result in a prompt and firm contraction of the uterus. Ergot works better on a full uterus, vinegar on an empty one, otherwise the results are similar. Should the patient be unable to swallow, then lift the fundus against the anterior abdominal wall, rub and push the intestines up, out of the way, and through the linea alba and into the sub-

stance of the uterine wall inject a hypodermic syringeful of filtered vinegar. The process is quite easy and as to bad effects I have never seen or heard of any. The abdominal wall is thin and relaxed and of course easily manipulated, and ordinary aseptic precautions are to be observed. Action upon the uterus should begin in ninety seconds and should be progressive. As soon as the patient can swallow administer the vinegar by the mouth, and then the contractions should quickly become tonic. This expedient is valuable in hemorrhage occurring some hours after delivery. It does not necessitate the introduction of hand or instrument into the parturient canal.

Should the emergency threaten while the accoucheur is in actual attendance, and while he has everything aseptic, let him take a small wipe, fasten it securely to a vulsellum forceps, soak it in chloroform, squeeze out the drip, introduce it up to the fundus, give it a turn or two and then withdraw it rapidly or he will have trouble removing it, so speedily does the uterine contraction follow that from seventeen to twenty seconds elapse before definite results are manifested. Choloroform seems to stimulate the uterus, to clot the blood, to make tampons in the mouths of gaping bloodvessels and to squeeze those openings shut, all at the same time.

In a severe case of post partum hemorrhage a man needs all the expedients of which he has knowledge, and perhaps a few additional ones. One he certainly cannot be too familiar with and that is cording the extremities.

SUMMARY.

1. The term post-partum hemorrhage should be applied solely to a flow of blood after delivery, 1,000 c.c. or more in amount, which blanches the lips, produces air hunger, and which gives rise to the pulse symptoms of severe hemorrhage. Other bleedings occurring under similar circumstances are properly named "excess bleeding," "threatened post-partum" or "traumatic hemorrhage" as the case may be.

2. A good precaution is to allow the mother forty-five minutes rest after delivery of the child.

3. A hemorrhage occurring some hours after delivery may be checked by the administration of an ounce of vinegar by the mouth. If this fails a hypodermic injection of the same, into the uterine wall is an efficient means of meeting the emergency.

4. A Rose bandage will hold the patient safe, after bleeding has been checked.

5. Threatening or actual hemorrhage at the immediate completion of labor may be forestalled or checked by the application of chloroform to the interior of the uterus, without the sticky black gum consequent upon the use of Monsel's solution or other iron preparations for the same purpose.

6. The writer simply desires to add to other more or less valuable means two simple ones which have served him well, so far at least, in dealing with this rare but always possible condition. However when it does occur it presents a picture which is finely described by Withington of Boston in these words:

"If the bleeding is not stopped the patient dies at once, even in the midst of the gratulations of her friends on the apparently successful completion of her labor."

CARIES OF THE HYOID BONE.

BY
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MOST authorities state that the hyoid bone at times may be fractured by hanging or other forms of strangling. A case of primary acute periostitis, followed by abscess, incision and recovery, has been reported by Stetter. Ullman reports a case of caries of the hyoid with subsequent fistula in a man forty years of age. The fistula remained after incision of a small abscess on the right side of the neck four years previously. In this case the necrotic portion of the bone was resected. Fracture of this bone is peculiarly dangerous and, in many instances, death has followed the complications. The ecchymosis may cause great difficulty in swallowing, talking or breathing. From its protected position the bone is seldom affected by external violence.

Inflammation of the bone may be the result of external violence or constitutional disease and usually begins as a periostitis with localized pain, swelling, dysphagia and dyspnea; suppuration and necrosis of the bone are apt to follow. These processes are usually limited, though the whole bone has been known to die and be cast off. After extrusion of the sequestrum the functions of the bone appear to be but little impaired. Tumors of this bone are most unusual, but five or six having been found in the literature; benignancy and malignancy seem to be about equal and death has followed removal in at least one case. Death occurred in another case from pressure before any operation could be undertaken. Secondary growths in the hyoid are of great rarity. The primary tumors reported are enchondroma, osteoma, and sarcoma.

Syphilis of this bone usually shows itself in the form of painful periosteal nodes which may cause interference with swallowing. After surgical or accidental interference with this bone tracheotomy may be necessary to prevent asphyxia and the stomach tube may have to be used in feeding the patient, as there may be inability to swallow on account of the swelling.

Patient L. F., a healthy young woman of excellent habits, aged twenty-eight, somewhat corpulent, was referred to me by Dr. T. L. Barber, Charleston, W. Va. On examination, a sinus of the neck was discovered opening just above the thyroid cartilage, leading inward and backward to the hyoid bone, which was distinctly carious. The sinus had resisted treatment since the patient was four years of age. No history of accidental injury could be elicited.

Operation.—A general anesthetic (chloroform) was administered and an elliptical incision was made around the skin orifice of the sinus; this cut was prolonged at the ends to gain room and the sinus was dissected down to the body of the hyoid without opening. The posterior periosteum of the body of the bone, together with its muscular attachments, was stripped away and the bone removed. A small portion of each cornu was left behind. Hemostasis was secured. A small rubber tube drain was carried down to the bottom of the wound and brought out through a stab opening below the line of the incision. The subcutaneous structures were brought together by a buried suture of plain catgut and the edges of the skin incision were approximated by a subcuticular linen suture. The neck was encased in a so-called mummy dressing. Healing by primary intention took place. Beyond a little soreness for a few days there has not been the slightest interference with any of the muscular functions dependent on the hyoid for attachment.

Pathologic Report.—This was made by Dr. G. B. Capito. Tuberculosis was suspected but no giant cells or other evidences of tuberculous infiltration were present. The bone was decidedly carious. The sinus walls only showed the characteristic appearances of chronic inflammation. The area of infiltration was small and practically limited to the immediate vicinity.

RETRODEVIATIONS OF THE UTERUS AND THEIR MEDICAL AND SURGICAL TREATMENT.

BY
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AN ancient Egyptian sage more than four thousand years B. C. wrote:

"Would that I had words that are unknown, utterances that are strange, expressed in new language that has never occurred before, void of repetitions: not the utterances of past speech, spoken by the ancestors. I squeeze out of my body for that which is in it, in the loosing of all that I say. For what has been said is repeated, when what has been said has been said."

The sentiment expressed in the above quotation is an apology for writing on that which has become commonplace, but "principles require constant revision and consideration," and perhaps the writer may be able to illuminate at least one point.

Retrodeviations of the uterus have been much studied and much discussed by the profession and, although our information as to the anatomy and physiology of the pelvic organs has been thoroughly investigated and is well comprehended, nevertheless, the true broad pathology of retrodeviations does not seem to be entirely understood by the gynecologist of average mind. The very fact that surgeons of eminence as yet disagree as to the best method of giving relief from the distresses incident to this condition, is full and complete evidence of some lack in therapeutics. It has become almost an axiom that where many drugs are recommended for the cure and relief of disease there is no panacea. Perhaps the error has crept in, as is not uncommon with the modern physician, by his focusing attention on an irregularity, forgetful of the known sympathy of tissues.

We have three stages in diagnostics: clinical history, physical examination, and laboratory determination. One or all of these may be of service in every examination. The tendency of the average mind is to do that which requires the least effort on its part. When a woman presents herself to the physician complaining of the uterine syndrome, examination is made, retroflexion easily discovered, and further efforts in diagnosticating cease, operation being ordered.

It is as important in retrodeviations as in, for instance, diseases of the stomach, that all known anatomic and physiologic causes for its existence and for associate symptoms should be considered. The co-existence of several causative conditions should be taken into account: the physiology of the uterus and its adnexa, and, not the least important, the interdependence of complications arising from or co-existing with the deviation, which affect other important structures. Not until these have been considered and their importance in the production of discomfort estimated in each individual case is it wise to proceed with therapeutic measures.

The uterus has a normal position, but not a normal direction. It has become a matter of fiction to state a norm in our literature. Such does not and cannot exist, but there is a normal relation to surrounding parts. One must recollect that the position of the uterus is one thing and its inclination another. Deviations of the fundus have a different anatomic pathology from changes in position of the uterus. The normal uterus is movable within prescribed limits, and to functionate properly it should be movable. It should have a proper possibility of excursion up and down. The body of the uterus should be able to move with changes in the size of the bladder and at times of impregnation. Respiration and exercise also demand elasticity in its supports.

The uterus is held in position by no one structure, but by a most delicate coordination in the action of several structures. None of these are strongly fibrous and none are inelastic. Like the other abdominal viscera, its most important support is its meso, inappropriately termed the broad ligament. In addition to the broad ligament, there are several bundles of muscular tissue extending from the uterus and morphologically continuous with it. A bundle of this tissue extends from the fundus of the uterus to the inguinal rings which, by their tonus, aid in holding the fundus toward the anterior abdominal wall, at the same time being attached rather distal of the mesial line, keeping the fundus of the uterus free from lateral movement. In the base of the broad ligament muscular tissues extend to the pubic bone. These fibers are not abundant nor of great importance. Another bundle runs posteriorly and laterally to the sacrum from the cervix. This uterosacral muscle, with its contiguous peritoneal fold, is the first to feel the effect of any descensus of the uterus. Such is its potential value that with many it is considered the most important uterine ligament.

The cervical portion of the uterus anteriorly is firmly attached to the bladder. The posterior wall of the vagina being longer than the anterior, the uterus enters it at an angle, thus inhibiting prolapse tendencies. We can now see that the position of the uterus will depend upon all of these several factors. A defect in any one will affect its position. In fact, it is rare for the uterus to be pathologically displaced without defect in more than one of these important structures. The integrity of the perineum, also of the pelvic diaphragm, size of the vagina, and condition of the parametrial cellular tissue regulate the *position* of the uterus. The tonus of the uterosacral muscle, condition of the broad ligament, and, in a minor degree, the condition of the other ligaments will influence the *direction* of the uterus. Antenatal conditions lead to defects in development, which largely predispose not only to malposition, but to distressing complications.

Extraneous causes for this condition are not uncommon. Particularly potent is the ballooned cecum, which with an accumulation of heavy fecal material may pound the uterus in spite of a proper condition of its supports. Likewise, a pendant overloaded transverse colon.

The relative value of these supporting agents to the uterus can be estimated by a forcible dragging down of the cervix into the vagina. The first tissue to resist will be the uterosacral muscle, and when that is divided, the next resistance will be produced by the broad ligament. Division of this throws the support upon the parametrium in the neighborhood of the uterine artery, the round ligament even then not being on tension.

Posterior displacements of the uterus have no symptomatology *per se*, and not until they become associated with some lesion of surplus tension, some disturbance of circulation, or exhaustion of the sympathetic is distress felt. It is here that we see the determining factor of "the way one is constituted." A woman well developed, with good nerve tone, whose cardiovascular apparatus is without defect, whose nature it is not to think of her ills, will find little distress from the deviation. Others fairly as well put together will only become conscious of it when tired and exhausted by work or worry, but a woman of poor nerve tone and hysterical temperament, whose vasomotor apparatus is not sturdy, whose sympathetic easily plays to reflexes, with perhaps some antenatal defect, will complain considerably.

The uterine syndrome, bearing down, backache, pains in the thighs, quick tire on locomotion and psychic disturbances, is in-

duced by any of the noninflammatory lesions of the pelvis. Some say that retroflexions produce disturbances in the circulation of the uterus and congestions, but the uterus is never seen to change in color as deviations are induced or relieved. Certainly the circle of Robinson is so perfect and anastomoses so complete and numerous that it would be difficult to induce any marked congestion by a retroflexion.

In the parametrium is a certain amount of erectile tissue, engorgement of which, if continuous, may be sufficient to induce more or less persistent distress. A slight descensus of the uterus can produce contractions of the uterosacral muscle and give pain. Dragging on the uterine meso is another source of distress. Pressure of the fundus against the rectum or against the sympathetic ganglia in the pelvis may also be productive of disturbances.

Dysmenorrhea, sterility, and dyspareunia are more prone to be due to some antenatal defect. The constipation associated with retroflexion cannot be considered in the relation of cause and effect, for women are notoriously careless in this matter, failing to maintain a proper reflex irritability of the defecation center through want of habit. Backache is entirely a neurasthenic pain, and he is a bold surgeon who will guarantee relief by operative measures.

It is thus seen that distresses associated with uterine malposition are not local. We have no local tenderness. We have no local changes. The pathology is simply that of its contiguous nervous system, and in thinking out a treatment it must be recollected that the uterus is more than a muscular apparatus. It contains in its substance microscopic ganglia resembling those found in the heart and intestines. Through the parametrium it is in a large degree connected with the ganglia of the sympathetic system in the pelvis, from which ganglia nerves pass to the urinary and intestinal tracts. The pelvic sympathetic system is the "executive apparatus" of the pelvic organs. More nerves depart from it than are received, suggesting that it is an "originating center." It is connected with the first, second, third, and fourth sacral nerves, and through the branches of the pneumogastric it may send reflexes even to the respiratory center.

The blood supply of the uterus and adnexa is controlled by the vasomotor nerves originating from this sympathetic plexus. The internal secretion of the ovaries has a special selective effect upon the vasomotor system of the pelvic organs. Any antenatal anatomic or physiologic defect in development will be shown by irregular functioning of the nervous and muscular tissue.

According as a person is constituted so will there be reflex disturbance from the conditions which may complicate retroflexion. Treatment demands that there be full recognition of possible tension on the fibers of the broad ligament and its contained nerves, of undue strain on the uterosacral muscle, of disturbed vasomotor tone of the pelvic organs, and of the numerous reflexes through the sympathetic—constipation, nervous dyspepsia, asthma, hyperesthesia, destruction of blood corpuscles, and stercoremia through retention of fecal matter. This means that treatment shall not be entirely surgical. We must treat the individual and not alone the womb; by improving the nerve tone, particularly local nerve tone, by massage of the lumbar region and the tonic effect of cold applications, control of intestinal hemolysis by natural action of bowels, not through laxatives, and increasing the hemoglobin. Cardiovascular tonics are called for and have a decidedly beneficial action.

Operative interference is necessary in the majority of cases, but not in all. The reason that all methods of operation have their failures is because they are all artificial. If any one ligament or any one tissue were always at fault, then to treat it would be reasonable and uniformly successful. If, after careful examination, it be discovered that the position of the uterus is abnormal, the perineum, pelvic floor, and vagina should be properly repaired. If the uterosacral muscles through prolonged tension or disease have become atrophied, their shortening may be indicated, although this operation is sometimes followed by a tender cicatrix which will continue the symptom-complex even though the position of the uterus be rectified.

Implantation of the bladder upon the anterior surface or fundus of the uterus will sustain the uterus in a more normal direction. Shortening of the round ligaments for a too movable uterus, not a descended one, has been advised by many surgeons with the most happy results. According to the skill and bias of the operator so will he select one or the other. By a posterior colpotomy he may easily determine the presence of adhesions and can separate the majority of them with safety. This will allow of a shortening of the round ligaments at their weakest part by an entrance into the inguinal canal through the fascia of the external oblique.

The object of this paper is not to discuss the five-score methods of surgical procedure. It is mainly to call attention to the importance of treating the woman as well as the uterus.

INTRAPARTUM VAGINAL MYOMECTOMY FOR INTRAPERITONEAL FIBROIDS OBSTRUCTING LABOR,

WITH REPORT OF A CASE.

BY
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FIBROIDS obstructing labor are not frequently met with. It is true that 10 per cent. of women of the child-bearing period have uterine fibroids, but the myomatous uteri with their abnormally shaped canals, displaced tubes, irregular circulation and pathological endometria do not favor pregnancy. About 30 per cent. of women with myomata are sterile and about 20 per cent. of those that do conceive, abort.

Not only are full-term pregnancies in myomatous uteri uncommon, but the great majority of them go through labor without serious trouble. The most common fibroids, the interstitial and subserous, situated above the lower uterine segment, never cause obstruction. The only fibroids that may cause obstruction are the sessile fibroids of the lower uterine segment, and the impacted pedunculated ones. (Cervical fibroids, as extraperitoneal, are not within the scope of this paper.) But, even in these pedunculated and sessile fibroids normal deliveries may take place. These fibroids may during labor be lifted out of the pelvis by the uterine contractions; they may be pushed out of the pelvis by obstetrical manipulations and may, as result of the pressure on them by the presenting part, assume a position or form more favorable for delivery.

But, there are cases in which such favorable changes do not take place. In such cases we either deliver the child by abdominal Cesarean section (with or without hysterectomy), or perform a vaginal myomectomy and deliver the child through the parturient canal.

Looking through the leading text-books on gynecology and obstetrics, we find abdominal Cesarean section universally recommended. A rather careful search through literature failed to find a single case reported of an intrapartum vaginal myomectomy followed by vaginal delivery. Yet, there are

cases where the vaginal myomectomy should be the operation of choice. Such cases are the pedunculated and sessile fibroids so situated as to enable us to have complete control over their vascular supply.

But how are we to tell those favorable cases? Are we not liable to find, after vaginal incision, the tumor so high, so large, so deeply imbedded in the uterus and so adherent, as to make the vaginal myomectomy unsafe and even impossible? Suppose we do, suppose we are compelled then to perform a Cesarean section with a hysterectomy, what harm is done the patient? The time spent on disinfection of the vagina and on the colpotomy is not lost, the work done forming part of the abdominal hysterectomy.

But what are the advantages of the vaginal myomectomy? To answer this question concisely they are as follows: 1. The child is delivered through the normal channel. 2. The uterus is saved. 3. The postoperative shock is milder. 4. The convalescence is shorter. 5. The mortality for both mother and child should be lower. 6. The generative and menstrual functions of the mother are retained

Of course the vaginal myomectomy may turn out to be incomplete; the uterus may have other fibroids besides the one causing the obstruction. But such fibroids may never give any trouble and may in time even entirely disappear. Besides, it should be remembered that we have to deal with an emergency, and that our object is to meet the emergency with the least possible danger for mother and child. The vaginal myomectomy answers this purpose best and should, therefore, be the operation of choice. We shall not stop here to discuss the possibilities of accidents during and after myomectomy. If they occur they should be treated, just as we do in other vaginal operations: through the vagina if possible, if not, through an abdominal incision.

TECHNIC OF THE OPERATION.

The technic is not a difficult one for those accustomed to do vaginal work. A longitudinal or still better a T-shaped incision is made on the posterior vaginal wall, the pelvic cavity is entered and hemorrhage arrested. The tumor is then seen presenting through the incision. The finger, or if possible, the whole hand is forced into the pelvis and the tumor is examined. With one or more volsella the tumor is then caught and traction is made

upon it. Any adhesions found are freed. If the tumor is too large to be delivered through the incision a V-shaped piece of it may be excised before its removal.

If the tumor is found pedunculated, an angular clamp is applied to the pedicle, the tumor is removed and the pedicle after transfixing it with a strong ligature above the forceps, is ligated. If the myoma is sessile, an incision is made on either side of it, the tumor is enucleated and the flaps are sutured.

After removal of the tumor the vaginal incision is closed either before or after delivery of the child. It is desirable, of course, to close the vaginal incision before the delivery of the child but, in the case to be reported in this paper, as well as in the case of intrapartum vaginal ovariotomy reported by me previously (AMER. JOUR. OBST., vol. lvii, No. 2), the child's head came down the vagina immediately after the removal of the tumor, thus covering the incision and making the closure before delivery impossible. In such cases the delivery, of necessity, must precede the closure of the vaginal incision. Pelvic gauze drainage may be used, if necessary. Fowler's position and vaginal douches are desirable features of the after-treatment.

REPORT OF CASE.

Mrs. B., forty-two, VIII-para. Admitted to my service at West Penn Hospital, November 3, 1906. Patient gave a good menstrual history. Her last childbirth, two years before admission, was normal and, on previous examination, no abnormality was discovered. Labor began about twelve hours before admission to the hospital. Dr. C. Anderson found a fibroid obstructing labor and, with the assistance of Dr. M. C. Cameron, attempted to push the tumor out of the lower pelvis, but without success. The amniotic sac having been found ruptured and the cervical os dilated, an attempt was made by them to deliver the child with high forceps but every traction on the child's head brought down the tumor in front of it.

A Cesarean section was decided upon, and the patient was sent to the West Penn Hospital. On admission her temperature was 97°, pulse 120, respiration 40. On examination of the pelvis a large tumor, hard, and somewhat movable and independent of the cervix was found in the posterior culdesac. The cervix was found displaced forward and upward, and its os dilated and directed against the upper part of pubic bone. The head of the child was found above the superior strait.

After an unsuccessful attempt under anesthesia to push the tumor up, I decided to try a vaginal myomectomy and if unsuccessful, to perform a Cesarean section. A small transverse incision was made in the posterior culdesac and finding it bleeding extensively, a longitudinal vaginal incision was made thus forming a T-shaped incision. The hemorrhage following the longitudinal vaginal incision was comparatively small. The posterior culdesac was then entered and the tumor was exposed. With a strong volsellum forceps the tumor was firmly caught and traction was made upon it. Sweeping the hand around the tumor I found it to be a sessile fibroid attached to the lower posterior uterine segment, the attachment being very superficial. An incision was made on either side of the fibroid near its attachment, the tumor was enucleated and the two serous flaps were caught with a clamp. The bleeding was then controlled by torsion and catgut ligatures. The child's head came down (right occipito-posterior position) making the closure of the vaginal incision before delivery impossible.

After packing the posterior culdesac with iodoform gauze, Dr. Cameron delivered the child with forceps and immediately afterward delivered the placenta. I then closed the posterior vaginal incision leaving a small opening for gauze drainage.

The patient made an uninterrupted recovery. The mother and child were discharged November 24, 1906, twenty-one days after admission. July 26, 1909, two years and seven months later Dr. C. A. Anderson and myself examined the patient and found her uterus movable and of normal size.

IN MEMORIAM.[1]

THOMAS SAVAGE, M. D., F. R. C. S., Birmingham, England.

BY
WILLIAM WARREN POTTER, M. D.,
Buffalo.

It was one of the saddest of fates that deprived this Association of a most distinguished honorary fellow, Dr. Thomas Savage, of Birmingham, England, who lost his life during the earthquake at Kingston, Jamaica, January 14, 1907.

Dr. Savage sailed, with a group of friends, December 29, 1906, in the *Port Kingston*, which carried a party of distinguished visitors. Few details are known regarding those who were lost, but Dr. Savage and his companions are reported as being among those who were killed by the earthquake or its consequences.

Dr. Thomas Savage was well known among the medical profession as a specialist in diseases of women. He was born October 11, 1839, at Wolverhampton, in which town his ancestors had dwelt for many generations. He was educated at Brewood Grammar School and in Paris; he went to Birmingham in 1856, and served his apprenticeship to the medical profession as an assistant to the late Mr. J. J. Hadley, who had a large practice in the Ashted district. Mr. Savage afterward became a house pupil at the Birmingham General Hospital, and attended lectures at Sydenham College. He became a member of the Royal College of Surgeons (England) in 1860 and a Fellow in 1869, a Doctor of Medicine at St. Andrews in 1862, and a member of the Royal College of Physicians in 1877.

After serving two years as house surgeon at the Eye Hospital, he commenced practice as a family doctor in Bordesley, and soon made a name for himself. At this period he was lecturer on botany at Sydenham College, and he afterward became professor of comparative anatomy at Queen's College.

When the Birmingham and Midland Hospital for Women was founded in 1871, Dr. Savage and Mr. Lawson Tait were

[1] The data for this memoir were supplied by Dr. Smallwood Savage prncipally from the British Medical Journal of February 2, 1907.

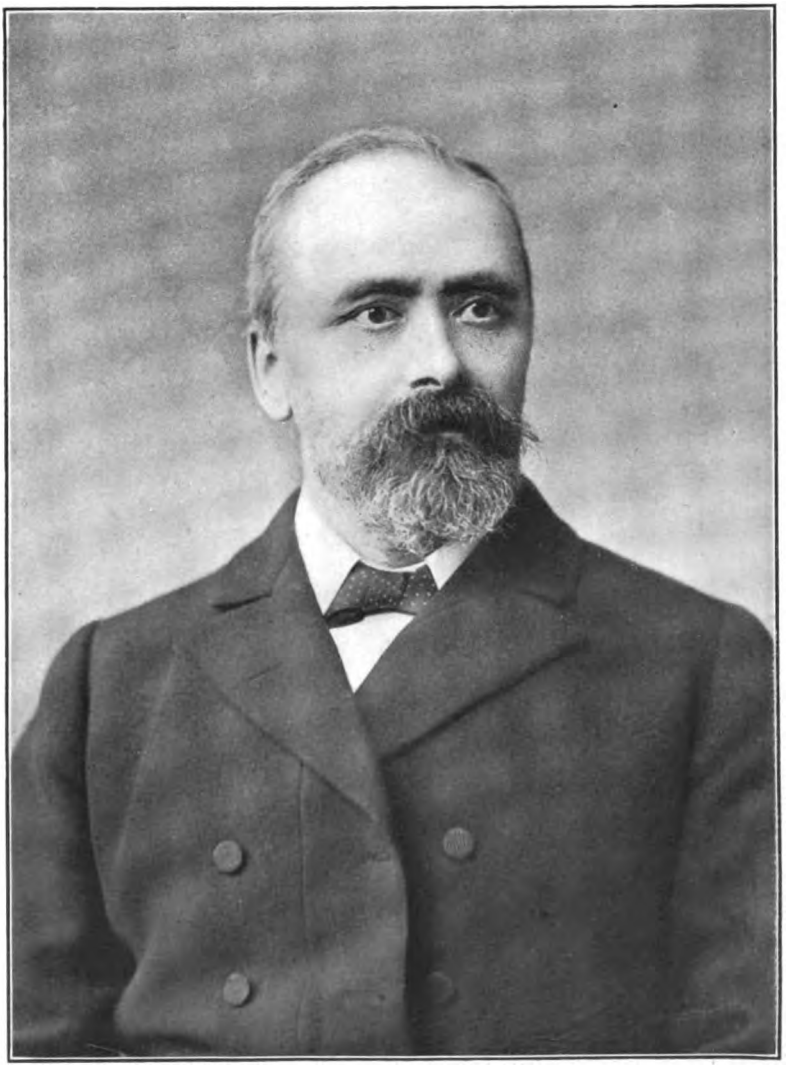
among the first surgeons to be appointed. For several years afterward most, if not all, of the operative work was done by them, and the success obtained by both marked an epoch in the history of abdominal surgery. Dr. Savage retired from the active work of the hospital in 1897 when he was made consulting surgeon. About the same time, while engaged in his professional duties, he contracted blood poisoning and had to have his arm amputated above the elbow. The courage and cheerfulness with which he bore this affliction was a remarkable characteristic of the later years of his life.

Dr. Savage was consulting surgeon to the Wolverhampton and District Hospital for Women, consulting gynecologist to the Kidderminster Infirmary, and consulting physician to the Magdalen Home. In 1881 he delivered the Ingleby lectures at Queen's College, and in 1893 he was appointed professor of gynecology at Mason College.

The honors conferred upon Dr. Savage by his medical brethren included the presidency of the Midland Medical Society in 1881 and the presidency of the Birmingham and Midland Branch of the British Medical Association. He also served as president of the British Gynecological Society, and president of the Obstetric and Gynecological Section of the British Medical Association held in Birmingham in 1890. It was in this year that he was elected to honorary fellowship in the American Association of Obstetricians and Gynecologists. He was the author of several valuable papers and monographs on medical and surgical subjects.

In spite of his devotion to an exacting profession, Dr. Savage found time to engage in philanthropic and other public work. Until recently he was president of the Birmingham Medical Mission. As a churchman he took an active interest in the diocese of Birmingham in general, and in the parish of Knowle in particular. As a collector of books and antiquities he displayed taste and culture, while his geniality and broad-mindedness contributed to his popularity in social circles. During recent years his principal sphere of activity was the Warwickshire County Council, he being a most useful member of the sanitary and educational committees of that body. He also was a county magistrate.

Dr. Savage, in 1864, married Miss Gosling, of Richmond, Surrey, a sister of Dr. Gosling, who practises in the Birmingham district. Mrs. Savage survives, and one son and three daughters



THOMAS SAVAGE. 1839—1907.

are living. The son, Dr. Smallwood Savage, is well known as a gynecological surgeon and was for some years a local secretary of the British Gynecological Society.

As an operator Dr. Savage was remarkably skilful, and even before the days of aseptic technic he was carrying out a most carefully devised surgical cleanliness in his abdominal and other operations.

In Birmingham and the midland counties Dr. Savage commanded the highest respect from all who were fortunate enough to claim his acquaintanceship; and his intimate friends were deeply attached to him because of his charming personality, as well as because of his sterling worth. He was beloved by many and his tragic death came as a shock to all who knew him—not alone his immediate family and personal friends, but his professional brethren and the community in general mourned his loss.

Dr. Savage's many virtues are not easily told in a short article of this kind, but we cannot close without alluding again to his skill and sound judgment as a surgeon, whose opinion was often sought by his colleagues, whose clientele was large, and whose patients regarded him with devoted affection. He was a friend to the poor and unfortunate whom he treated with tender consideration, a courteous gentleman in his relations to the citizens in general, and a man with a high conception of obligations to professional and public life. Moreover, he was universally respected in Birmingham, where he was a familiar figure as a citizen, well known as a distinguished surgeon, and who was looked up to as a gentleman of high ideals.

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